The Builder.

SATURDAY, JUNE 16, 1855.

THE Parliamentary Committee on the new Metropolitan Buildings Bill have again met, and the measure is beginning to assume a more practicable shape, although it still contains many objectionable provisions, amongst which we must continue to place the reference of matters in dispute under the Act to the police courts. So many alterations, too, are made from time to time, that we cannot venture to say what its provisions actually are at this moment. One great question still under discussion is the mode to be adopted for determining the thickness of walls, and we shall best bring this before our readers by giving a full report of the discussion of this point at the Royal Institute of Architects on Monday evening last, when Mr. Hesketh read a paper "As to the method which it is most advisable to adopt in the Metropolitan Buildings Bill for regulating the thickness of walls."

The reader said, together with other district surveyors, I feel deeply anxious that the Bill for the regulation of the buildings of this vast metropolis should be efficient, and, at the same time, acceptable to the respectable part of the public immediately interested in it, and yet, from the shape in which it has been brought forward, I entertain great doubts whether it will prove either the one or the other. If not, the officers under the Act will bear, as they now do, the odium as well of its deficiencies as of its oppressive enactments.

These officers have been accused, in high quarters, of neglect and apathy in the discharge of their duties with regard to certain sanitary regulations; and, though they have disproved the facts alleged against them, and though, if these facts were admitted, they have clearly pointed out that the law does not enable them to interfere, or even to enter upon premises, for the purpose of inquiry, yet the accusation remains recorded against them with the following special recommendation:—"Should any amendment of the (Buildings) Act be in contemplation, this general neglect of duty on the part of the surveyors, and this apparent apathy of all concerned in the administration of the measure with relation to the only provisions of it directly bearing on sanitary matters, ought not to be lost sight of." To any one at all cognizant of the Act, the accusation confutes itself, and I cannot help quoting, with gratification, one of the resolutions just passed by the Builders' Society, to show that it does not weigh much with them, viz.—"That the duties of the district surveyor could not be as well fulfilled by any but competent professional men, and that the interests of the public could not be protected efficiently by any arrangement which would throw these duties on a less educated class of men."

This is the gratuitous testimony of that class which has most concern in the operation of the Act: those on the other hand who have had the charge of the new Bill, have thoroughly carried out the *former* recommendation, for not one of the officers serving under the present Act has been consulted in the preparation of this measure. The result of this unmerited distrust is, I submit, that we have in the new measure not a reform of what is faulty and oppressive (which is greatly needed), but many totally new regulations subverting even the very things most approved by those who are cognizant of the working of the Act. These are my reasons for seeking this opportunity of entering upon that subject, which is amongst the most important to have properly settled, namely, the rules for determining the thickness of the walls of buildings.

The story of the Bill and its changes on the subject before us, since its first appearance about six weeks ago, seems to me sufficient of itself to occasion some diffidence in the minds of those who do not profess to judge of its scientific and practical merits. It was printed at the end of April, read a second time, and referred to a select committee. Previously, however, to its coming before the committee in the middle of May, all the rules relating to the thickness of walls had been struck out, and new ones *on totally different principles* were substituted, in order to meet the outcry against their being complex, and giving erroneous results. The district surveyors, however, and perhaps others, pointed out to the framers of the Bill, that besides the difficulties of working out such complicated rules, they were seriously defective in many points which they particularized. The consequence was, that before any discussion on them took place in committee, a third edition was printed, in which these defects were thought to be remedied by means of special rules intended to meet the objections. This not being the case in the minds of the objectors, at the request of one of the framers of the measure, I discussed the subject with him, and afterwards with him recast the schedule in a new form, to which I at first thought he agreed, though (it appears) in error. This recast was put in by the district surveyors, and is now printed by order of the committee, as well as the framers' schedule, which has now assumed a fourth edition.

It has, however, been put in by the district surveyors, with the express understanding that they do not assent to the rules which still remain for determining the thickness of walls of public buildings, where any story is more than 20 feet in height. These rules merely remain because under the altered constitution of the Bill they were not able at once, in so short a time as has been allowed them, to propose a substitute. As they stand, the rules cannot work well.

One important improvement, however, has, I think, been introduced into this Bill, by allowing buildings to be built in compartments, separated by cross walls, the thickness of the walls being regulated by the size of the compartment, and not of the whole building, as in the present Act. The advantages of this are, amongst other things, that it will conduce to economy of space and cost, by allowing thinner external and party walls, and to sounder construction and greater stability, by encouraging brick internal walls, instead of wooden partitions, thereby also causing a great diminution in the risk and extent of fires, and in the end, probably to the reduction of premiums of insurance.

I may perhaps be allowed to say, that I first suggested this system to Lord Seymour, then First Commissioner of Works, in March, 1851, when I carefully pointed out all its advantages.

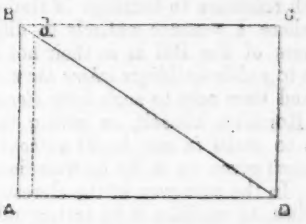
The cross walls are to be at least two-thirds of the thickness required for external and party walls; but not less than 8½ inches thick; to have the openings limited to a third of the vertical area in each story, and to be carried up at least two-thirds the height of the building: I think four-fifths would be better.

We come now to the rules proposed by the framers of the Bill for determining the thickness of external and party walls.

One professed object of the framers is to simplify the Act, by dispensing with the system of *rating* buildings, which was introduced into the first Building Act passed in 1667, the year after the fire of London, and said to have been framed by Sir C. Wren. I must assert, that there is a complete declension in the new Bill from the framers' original intention. In the first Bill, it is true, it was completely carried out; but it was so by introducing a far more complex system, by losing sight of many matters which past experience had shown to be proper and requisite, and by permitting many defects and anomalies in practice. These having been pointed out (and I will presently show some which remain after the last revision), a most complex system of rating, actually, though not nominally, has been introduced into the new editions. There are, besides the general rule, no less than seven special ones, according to seven different sorts (why not call them rates?) of walls: warehouses, and that class of buildings, have likewise another system of rates of walls. And more than this, while the present Act gives but one rate to each building, this Bill would give a separate rate to almost every *wall* of a building. This must, then, surely negative any advantage said to be gained in this respect, and moreover, give the comparative merit of simplicity to the present Act. I am not sure that I might not go one step further, and submit that this complex system of the Bill ought, in this respect alone, to prevent its adoption for ordinary buildings.

But it will probably be said by many, that if the result obtained is right, it will be worth this complex machinery, and into this result will therefore inquire.

Now, the system proposed in the Bill purports to be founded upon the principles set forth by Rondelet, which he based upon, as he says, "an infinity of experiments, observations, and calculations." His first rule, which is that adopted in the new Bill, with a modification in the denominator, is as follows:—



Let A B C D be the elevation of a wall of a building between return walls at A B and C D. Draw the diagonal B D and set off on it B *d*, equal to a twelfth part of the height A B, and draw a line through *d* parallel to A B, and the space between this line and A B is the required thickness of the wall. The height A B, be it observed, is from the floor to the tie of the roof, not to the top of any parapet or gable, as in the Bill. The following formula gives the same result. The thickness $= \frac{l \cdot h}{12 \times d}$. l, h, and d being respectively the length A D, height A B, and diagonal B D. This, though only a rule of thumb, seems to be founded on some degree of reason; for it is evident that in walls of the same height the longer a wall is between return walls the thicker it ought to be between certain limits; nevertheless, the thickness ought not to increase so fast as its length, because the height must be the principal element in determining the thickness. This is attained by the rule where the length is much in excess of the height, inasmuch as, supposing the length to increase from A towards D, and onwards by equal increments, the corresponding increments of the ratio of the height and diagonal would be continuously diminishing. In the same case the thickness would increase nearly in proportion to the increase of height. But the rule fails more and more as the height becomes more and more in excess of the length, till it gives absurd results, as in the walls of towers. The formula of Rondelet is, as I have said, the thickness $= \frac{l \times h}{12 \times d}$.

That of the last edition of the Bill is for public buildings, the thickness $= \frac{l \times h}{18 \times d}$.

Now my impression is, that the divisor 18 will make the walls too thin for safety when in one story, and that Rondelet's divisor 12 is better. It is, however, a subject which requires great consideration. I give a few examples of calculations on both formulæ, in the diagrams suspended, in which are three instances of the aisle walls of churches with galleries. In these Rondelet's rule comes nearer than that of the schedule to the actual thickness; but I think that a mean between 12 and 18 will be found better than either for brick walls of public buildings in one height.

The formula ought, as I have shown, to be discontinued when the height is much in excess of the length; otherwise a wall, say 60 feet high and 20 feet long, would have its base no thicker than one 20 feet high and 60 feet long, and the Bill does so when the height exceeds twice the length, by requiring the thickness to be one-fortieth of the height. Yet I think this also gives too slight a wall, and requires the fraction

to be increased. For myself, I certainly think that, for public buildings with a high story, a formula ought to be introduced for determining the thickness of the walls, instead of the undigested rule of the present Act, though such formula may not be applicable on every occasion, and then special calculations must be resorted to. At the same time I think a far more perfect formula may be obtained by varying the thickness with reference both to height and to the square root of the length, which is founded on the reasons I have before given, and would not require abandonment in certain cases, as Rondelet's and the framers' rules do. I venture to submit the following formula, therefore, for consideration, though it is but a rule of thumb:—

$$\text{Thickness} = \frac{2}{5}h + \sqrt{l} \text{ in inches.}$$

Many speak against any such rule as being complicated; but this would not be the case, because of course, directly the Act should be passed, tables would be formed just as we now have with reference to bearings of timbers.

But where I venture entirely to differ from the framers of the Bill is in their not limiting this rule to *public buildings where there are lofty stories*, and then only to such *lofty stories themselves*. Rondelet himself, in giving this rule, limits it to *walls in one height without the ties or abutments* given to it by intermediate floors or roof. In the case even of the clerestory wall of a basilica, he modifies it by setting off on the diagonal, as at B *d* one-twelfth of the height of the clerestory, added to one-twenty-fourth of that of the part below it; thus diminishing the thickness on account of the aisle roof. But for buildings composed of many stories, he says distinctly, "In ordinary houses where the height of the stories does not exceed 12 to 15 feet, in order to find the thickness of walls, whether internal or external, regard must be had *only to the width of the spaces which they divide, and to the number of stories which they have to sustain.*" It is not, however, necessary for me to go into the rules he gives for those buildings in stories, for this reason, that the framers of the Bill have themselves unaccountably forsaken those rules which Rondelet himself prescribes, and have adopted his first rule, which I have explained, and which he most distinctly repudiates for ordinary buildings in stories.

The framers' schedule is consequently still full of serious defects and anomalies, notwithstanding that they have departed from their first principle, and have introduced so many special rules for the purpose of obviating (as before mentioned) some particular inconsistences in the application of their general rule. I will point out two or three defects. First, small houses, now called fourth-rates, if they have *four* stories, are to be allowed *two* stories of 8½ inch walls; whereas if they have only *three* stories, they are allowed only *one* story of the thinner, or 8½-inch walls. This is the reverse of equitable. Secondly, in the larger description of houses, say there are two walls, each 40 feet long, between return or cross walls; and suppose one is 75 feet high, the other 85 feet high, the latter may have a greater height of the 13 inch or thinnest wall than the former. Thirdly, in such buildings, any of the uppermost stories, such as may be used as a gallery or show-room, might have been of any height up to about 40 feet, and yet have had the walls only 13 inches thick. I say *might have been*, because a new edition of the framers' schedule has just been printed, and is now laid on the table of the Institute for the first time. This, I believe, has taken another amendment from the present Act, by introducing a rule of increasing the thickness of the walls of stories when above a certain height, beyond the thickness otherwise required.

Now, under the rules of the present Act, I venture to say that not one such palpable defect or inconsistency can occur; but under the framers' schedule there are many more than I have specially mentioned, which I have not had time to put into shape.

There is one great anomaly, I admit, under the present Act, if the official referees, and with them about three of the district surveyors, are correct in their view of the Act, which is, that the small buildings commonly built in the rear of larger ones, and communicating with them, would require thicker walls than the larger building, because, by the addition of the smaller building, the rate of the whole had been increased. This, however, would be completely remedied by the new system of cross walls.

The Bill then, as I have above shown, is inconsistent and erroneous in its practice, and at variance with its own authority—Rondelet,—in adopting, in spite of him, his first rule for ordinary buildings in stories, and in forsaking his general principle, that in determining the thickness of the walls of such buildings, "regard must be had only to the width of the spaces which they divide, and to the number of stories which they have to sustain." Clearly neither one element nor the other comes into the calculation. I do not say that Rondelet is perfectly right, but at all events he has named two principal elements.

But not only does the new Bill *not* recognise these elements, but the present Act does so in the case of dwelling-houses by rating them according to area, as well as by the height and by the number of stories. In the rating by area, the width of spaces between walls may be deemed to be sufficiently taken into account, for in—

Fourth rates, the extreme width is $\sqrt{400}$—9 in. or about 19 feet, or in ordinary cases, say 15 feet.

Third rates, the extreme width is $\sqrt{600}$—1 ft. 2 in. or about 23 feet, or in ordinary cases, say 17 feet.

Second rates, the extreme width is $\sqrt{1000}$—1 ft. 2 in. or about 30 feet, or in ordinary cases, say 22 feet.

First rates, the extreme width is $\sqrt{1400}$—1 ft. 6 in. or about 36 feet, or in ordinary cases, say 27 feet.

And to meet these progressive widths are these progressive rates, requiring a progressive increase in the thickness of the walls. The number of stories also comes into consideration by the system of determining the thickness, by reckoning from the top of the wall downwards, instead of as in the 14 Geo. III. from the base upwards.

I believe, therefore, that for buildings in stories, the system (I do not say all the details) of the present Act is as perfect as possible, including in it of course the rules for increasing the thickness of walls of high stories, and their substructure. In the recast schedule it is therefore proposed to retain the rules of the present Act, for the dwelling-house class (with the exception of allowing in fourth-rate houses only two instead of three stories of the party-walls, to be built of 8½ inches thickness, as the latter has been found not to be sufficient for stability); also to retain them for warehouses and manufactories, with slight exceptions. It is further proposed, notwithstanding those general rules, that every story of a dwelling-house shall have the thickness of its external and party walls, at least one-fifteenth of the height of the story, and in warehouses and manufactories one-twelfth the height; and that any extra thickness may be disposed in piers, one-third the length of the wall, and that any substructure shall be increased in thickness proportionably to the superstructure. Where public buildings are built in stories not exceeding 20 feet in height, it is intended that they shall follow the dwelling-house class. Where, however, public buildings have any story, or stories, exceeding the height of 20 feet, then to let them follow the rules of the framers' schedule, which, however, I think, might be improved by keeping the rule to a single story, and by decreasing the divisors 18 and 40 to numbers nearer to, say, 15 and 30.

One other new introduction into this Bill, which I think is quite right, and will be attended with perfect security, is the allowance of recesses in party-walls, as well as external walls.

In conclusion I wish to state, that the remarks which I have ventured to offer, have been made with the determination of adhering as far as possible to the Bill before us, because there are, doubtless, wise reasons for adopting the general scheme of the Bill; but with regard to public buildings, the district surveyors have long ago urged the value of the superintendence as to their safety, being delegated, as at present, to more than one architect. Make what rule you will, it will be found that to the large majority of public buildings, excepting those built in stories, they will be totally inapplicable,—in one part proving very obstructive and oppressive; in another, insufficient for safety.

In the former case the architect must get relief by application, as now proposed, to the superintending architect, to whose single decision, perhaps of not equal consideration to his own opinion, he will have to bow. For this object a Board of Architects, as at present constituted, must be far preferable; at all events, till the happy time shall come when public buildings shall in all cases require an architect, and an architect in all cases a diploma to show his qualification for his profession, when official supervision as to safe construction might be probably dispensed with altogether.

At the close of the paper,

The Chairman (Mr. Tite, M.P.) observed, that the real matter for discussion was very simple. It had been a great inconvenience that the existing Act and the previous Bills were indefinite, but the copy of the Bill in its latest form, which he had that day obtained from the Office of Woods and Forests, had his unqualified approval. It contained a clause, suggested by himself, to the effect that the Institute might cause to be examined, by such persons and in such manner as they might think fit, all persons who might present themselves to be district surveyors, and that the Institute should grant certificates of competency, without which no district surveyor should be appointed. This was a point gained, and more might have been gained if the district surveyors had acted with the committee of the Institute. With regard to the thickness of walls, he considered it was idle to occupy time in the discussion of formulæ and principles. As a practical architect, he was sure that the regulations laid down in the Bill would in the main break down; but this did not signify, as the Bill contained two clauses which, with a little amplification, might have superseded the necessity for the schedules. (?) One of these clauses provided that the Board of Works might alter the rules for the thickness of walls; therefore, if the formulæ suggested either on one side or the other did not work well, there was the power to change it, and that power would, in fact, be in the hands of the architect to be appointed by the Board of Works, who would see the necessity of exercising it. The other clause provided, that in the case of "any building whatever, except those mentioned in the last preceding section," namely, buildings of iron and glass,—the builder might either construct the same according to the rules of the Act, or he might represent to the Board of Works the inapplicability of the rules, submitting a plan and particulars, and then the building might be erected in any way which the architect appointed by the Board might direct. To the existing system of "rates," there were some objections; because mathematical rules must be limited, definite, and arbitrary, and they must lead at times to inconvenience; but in the main the schedules of the existing Act were understood and were satisfactory. The question was, whether the meeting wished to retain the present system of rating by area and height, and on this point the committee of the Institute and the district surveyors should be unanimous before the Parliamentary committee.

Mr. C. Barry urged that the schedule of the existing Act had been long in use, and was intelligible, and probably a majority would decide that it had been found to work sufficiently well, and not to need any important change.

Mr. Papworth, Fellow, moved a resolution, urging the adoption of the principle of rating as it exists in the present Act, with certain modifications. He had observed many points in the new schedule upon which a difference of opinion might arise, whereas the existing schedule was clear.

Mr. Jennings, Fellow, observed that there was little to complain of in the schedules of the existing Act, the only difficulty as to the thickness of walls being in the case of public buildings, when it was necessary to apply to the official referees for a modification. The schedules had worked well, but the other machinery of the Act was defective, and prevented its being carried out. It was now proposed that the Government official should have power to alter the rules of the Act as he pleased. The propriety of such an arrangement was rather a question for the

public than for the profession, but he thought architects would object to be liable to the crotchets of any one individual. When he first saw the present Bill, it appeared to him to affect very much the liberty of the subject, and he regretted that it had not, like previous Bills, been sent to the district surveyors and the profession generally, in order that they might have an opportunity of stating their objections to it.

Mr. Penrose, Fellow, said that having acted somewhat as junior architectural counsel, under well-skilled seniors, in the preparation of the Bill, he could assure the Institute that there had been no intention to avoid bringing the measure earlier before them. The delay had arisen entirely from accidental circumstances. The district surveyors had been very much consulted, nearly fifty reports having been received from them some months ago, and carefully digested. Lord Seymour's Bill, which had been much used in the preparation of the present, was also based very much upon the evidence of the district surveyors. The question really was,—rating, or no rating? And on this point the reports of the district surveyors, in many cases, raised a doubt whether the existing system was a good one. It had not appeared right to the framers of the measure to put *all* buildings, as it were, into five boxes of fixed sizes; but rather that they should consider walls in themselves, and in reference to the work which they had to do. Rondelet, as the great authority on this point, was consulted, and both of his systems were worked out with great care, hundreds of examples being tried. Looking at the proposed schedule in its present form (and disregarding the accident which led to the printing of one system, which it was necessary to recall), it was believed that the rules laid down would give the proper thickness of wall in almost every instance,—and where it did not, there was a remedy by application to the proper authority. He knew it was the opinion of many besides himself, that the system of rating was inconvenient, and that a simple rule for determining the thickness of walls by themselves was preferable. The general rule proposed, and which would apply in nine cases out of ten, was, that when the length of a wall did not exceed half its height, then its thickness should be one-fiftieth of its height; and where this was the case, the simplicity of the rule would supersede any reference to the tables; and even in other cases, such reference would be very easy, as the tables were short, and might be carried on a slip of paper in a pocket-book.

Mr. Burnell considered the power of altering the rules of the Act objectionable, as the principle of all law was its certainty. It was, in fact, absurd in logic to make enactments, and to give the power to vary them, especially as that power would be vested in one individual. As far as dwelling-houses were concerned, he did not see any necessity for altering the old schedules: the difficulty only arose with reference to public buildings. Mr. Burnell then referred to the Strasburg Railway Station at Paris (500 feet by 100 feet, and 45 feet high), the walls of which were only 1 foot 10 inches thick; whereas, according to the formula of Rondelet and the proposed schedule, they ought to have been 3 feet 7½ inches, if without buttresses, or 2 feet 5 inches with buttresses. He also cited a polygonal engine-shed at Tours, of which the dimensions were as follows:—radius of the circle, 66 feet 6 inches; span of roof bearing on the external walls, and on internal columns, 33 feet 3 inches; sides of polygon, 25 feet 7 inches, the thickness of the wall being 2 feet. This thickness coincided with the formula of Rondelet; but according to the schedule in the first edition of the Bill under discussion, the thickness need not have been more than 10 inches.

Mr. Alderman Cubitt, M.P. said that when he was asked by the Chief Commissioner of Works to act on the committee on the Bill, he had felt it his duty to consent. He, in the first instance, carefully read the Bill, and was much struck with its merit, as introducing a system of extreme simplicity with regard to the thickness of walls; and he was still of opinion that it was more rational to take the height of each individual wall, and to consider its requirements in reference to its height rather than with reference to the area of the building. He was the more convinced of that by considering the anomalies of the existing law. If a building contained four squares, it was a fourth-rate building; and if it contained more, the walls must be of a greater thickness. But as a building of four squares would not accommodate two families, an "addition" was made to it, the walls of which were allowed to be of the same thickness as those of the building itself. Therefore, the law sanctioned that as an evasion which the proposed new system would permit. Moreover, the evasion gave more trouble to the district surveyor, and the house cost more by reason of the delay for the "addition," and must be let at a higher rent. There was nothing to recommend the existing system, except that architects were accustomed to it, and had been brought up in it. He had been a builder forty years, and ought to have obtained a great deal of experience; and if he were still a builder he was satisfied that by inspecting the drawings and ascertaining the length and height of a wall, he should at once be able to determine its proper thickness under the proposed schedule; and the district surveyors would in like manner find no difficulty in it whatever. He had often had to deplore the necessity of making a wall of an unnecessary thickness, because the building happened to be of a certain rate. The present was an age of reform, in which it would not do to uphold a system because it was old and well understood. On the contrary, all reformers would join in any well-digested scheme, by which the construction of houses could be made better and cheaper, and by which all unnecessary machinery could be got rid of. They were now 200 years in advance of Sir Christopher Wren, and it was strange indeed if they could not improve upon a system which was probably the best which could then be suggested.

Mr. T. Piper, visitor, expressed his opinion that the schedule of the Bill, as that day printed, would be acceptable to builders. The rule of determining the thickness of a wall by its other dimensions must commend itself to all as a simple and practical rule, and far preferable to that of the area which it might enclose. It would be very easy to fix the limit of height before a building was commenced. As an illustration of the difficulty to be expected in applying for any departure from the Act, Mr. Piper stated that, on one occasion, he had received permission to erect a house just four weeks after it was finished and occupied. He preferred the definition of the thickness of walls by inches rather than the number of bricks; for with all the prejudice of education in favour of the existing size of bricks, he was not prepared to say there might not be changes and improvements in bricks hereafter.

The Chairman observed that the great object was to protect the interests of the public, as against the interests of speculative builders. Reform should be carried out, but they must not introduce confusion. The present system was well understood, and was working well; and why, therefore, should it be changed? The technical phraseology of the schedules ["let a right angled triangle," &c. &c.] was enough to confound a plain man before he got half way through them. They were not dealing with cases where architects were employed,—for even in the highest possible quarters it was not now the fashion to employ professional men!

The Chairman then called attention to the terms of the motion, and, after some conversation, an amendment was incorporated with the original motion as follows:—"That the committee of the Institute be requested to urge respectfully upon the special committee of the House of Commons on the Metropolitan Buildings Bill their opinion that it is *not* desirable to change the principle of rating of the present Act, and the thickness of the walls consequent thereon; and that in their judgment it is most desirable to retain the schedules of the existing Act relating to these subjects, except as to the public building class, to which the new schedule may with propriety apply."

The motion being put to the vote of the Fellows present, was carried,—one member alone voting against it.

The following deserves the consideration of those to whom it appeals:—

Sir,—Can any of your numerous readers tell what, amid the changes and chances of this mortal life, is to become of the working body of the office of Metropolitan Buildings? The new Bill contemplates its entire abolition.

Can it be possible that this little band, which has worked the old ship through its earliest storms, and subsequently stuck to it in its water-logged condition, is to go by the board and be cast adrift on a trackless sea without provisions, without a compass, and without a helm, to float irresistibly towards the dark waters of despair?

These corporals and sergeants of the force, who have seen the Almas, Inkermanns, and Balaclavas, of the existing Act—are they to be cast off without even a *medal?*

The public at large, and the district surveyors in particular, can, I am sure, bear witness to the cheerful service by which many a lame dog has been helped over a stile, many a sea of trouble, calmed by the ready assistance, rendered early and late, of these sappers and miners of the Act.

Should these lines reach—as I trust, through your favour—they may—the eyes of some of our legislators, they will not, I feel confident, pass unheeded the peculiarity of their position, after nearly eleven years of faithful service. Well do I remember, how painfully, but earnestly, they contended through the first rough years of the Act, in those murky chambers up three pair of stairs in Trafalgar-square; and shall they, who have borne the burden and heat of the day, meet with no recompense?

It has been suggested that their early career is an apt omen of its close—that as it began in *smoke*, so also will it end.

In the name of humanity, let not this be the case.—A. Z.

We earnestly repeat the hope here expressed, and bear willing testimony to the ability and right-feeling of the gentlemen in whose behalf the appeal is made.

ON THE ARCHITECTURE OF THE PRE-GOTHIC AGE IN GERMANY, OR THE ROMANESQUE DEVELOPMENT OF THE RHINE AND CENTRAL EUROPE.*

IN the roofing of the towers of the church at Boppart, a peculiarity exists which has not been directly imitated in any succeeding style, the walls being finished with very high pitched *pediments*, the horizontal side or base of the triangle having mouldings similar to those which form the raking cornice of the roof. Here we see a remnant of Roman art, which was never carried further, the *gable* of a higher pitch, without the horizontal base, being universally adopted. The square ends of the walling, in any position, are finished in this manner, and the pitch of some of these pediments in the transept ends is still more in accordance with the classic type. The polygonal walls of the apses have often each face terminated by a pediment, and octagonal towers, as at Sinzig, St. Croix Liege; and even the walls which support the immense spire at Bonn are finished in the same fashion. The ridges of the roof being carried up from the apex of these pediments, meet together at an acute angle, and thus form a kind of spire, terminated by a vane and an ornamental cross. The flat surfaces of the roof between the sides of the pediments and the ridges of the spire are consequently of a diamond shape, and when scored with the diagonal lines of slate roofing, have the appearance of being ornamented with scales, the slates being always rounded at the corners. The angle of these roof-ridges varies, but it is generally acute, and more so the nearer the whole approaches the form and character of the spires of a later period.

In England, we have but one solitary specimen, at Sompting in Sussex; but it is a perfect pattern of the Rhenish tower and spire. Whether the spires of St. Martin, Cologne, and Schwartz Rheindorf are original, is uncertain,—but if so, they are the precursors of our common hipped broach spires, being octagonal on a square base. Along the banks of the river Maine, at the Pfarrkirche at Aschaffenburg, the villages of Erlenbach, Miltenberg, &c. are seen small but more elaborate specimens, in which the octagonal spire is complete, with a rib springing from the base as well as from the apex of the pediment. On the borders of Switzerland, by the Lake of Constance, and the upper part of the Rhine—thence to Schaffhausen,—these forms occur, varied according to circumstances. But the pedimented spire is not the universal roofing for towers, but it is reserved for the better class, or the most important of a group. The ordinary eaves roof forms a square spire on a square tower, or a polygonal one on a polygonal base. The example of Laach gives the latter form on two circular towers at the west end and the eastern cupola; and the former on the two at the opposite end, while the square form of the west cupola, being the most important feature, and the highest of all the six, has four pedimented faces. Many examples of (now) isolated towers, occur on the Rhine, one large one near the mouth of the Lahn, nearly opposite the castle of Stolzenfels. It is to be remarked that during the whole of this period the character of the spire was essentially that of a *roof* or covering for protection, and it is not till a much later date that we see it assuming a more important ornamental character, and constructed solidly in stone. The later we see it, the more resemblance it has to those succeeding constructions which were consummated in such masterpieces

* See p. 254, *ante*.

of Gothic lightness and skill as Freiburg Minster.

But there is yet another class of small country church towers, which are found in the plains round the cities of Augsburg and Munich, on the Danube, and towards the mountains of the Tyrol and Switzerland, of a form so common, that twenty or thirty may be counted in a day's journey, and sometimes, when an extensive view is obtained, at least half a dozen can be seen at once. Meyringen and Pasing are two of them, and they have simply two gables instead of four, and an ordinary high pitched roof. The earlier examples have pediments, and not gables. Some on the Rhine have a small gable in the centre of the tower; but this disposition is best seen in the four elegant spire-capped towers of Bamberg cathedral, which are carried up eight stages, and finished with gables and spires of a pink colour (copper), surmounted by an elaborate gilded cross. * * * * *

The interior effect of the Romanesque churches is mainly due to the use of the open *cupola*, which is placed at the junction of nave and transepts, and though of various forms, always gives dignity and power. Acknowledged to be the redeeming feature of the Classic Renaissance, the grandest of the Byzantine and of the Romanesque, it is a matter of surprise that its value seems never to have been duly recognised in the later Gothic. The question of the Gothic dome has been frequently raised of late, and it is not impossible that the present century may see it satisfactorily solved.

At Laach, the eastern cupola is octagonal: the western one is square, with pediments and a spire. At Sinzig, at St. Jacques, and St. Croix, Liege, the central cupola becomes a tower—octagonal, with pedimented faces, and a spire with ridges at the base, not at the apex of the pediments. At Worms, there is one cupola over the transept at the east end (flanked by round towers), which is octagonal, having an ogee-shaped roof (not the original covering). Spires cathedral has an additional circular one at the west end, but it is difficult to say how much of this is original, on account of the many disasters which have happened to this portion of the edifice. The cathedral at Maintz has an octagonal cupola at one end, of a highly mixed character externally; the base being decidedly Romanesque, with the usual gallery; then a stage of later work; upon that another, with a parapet of a different style—the whole crowned by a small octagon, finished with Renaissance work; but the whole being built of the same peculiar red sandstone, has by no means an incongruous appearance at first sight * *

Nothing contributes so much to the lightness and gracefulness of character which some of these buildings possess, as the open galleries surrounding them on the exterior,* and in many cases in the interior also: this latter arrangement, shown in the *männerchor* or triforium, has been previously mentioned. Small shafts resting on appropriate bases, and carrying grotesquely carved and foliated capitals, support small round arches, and form between themselves and the wall a passage way round the building, of which the church at Schwartz Rheindorf is an exquisite example.

The window openings are of a very plain character,—generally single, though sometimes double, or placed side by side; with or without an enclosing arch; in gables, or as a triplet, having the centre opening taller than the side ones, and a round arch enclosing the whole. The wheel windows, large and small, though not a very numerous class, would in themselves form a very interesting study: in some, plain flat tracery is decidedly developed, akin to what may be found in Italy, when "Gotico Tedesco" was first imported at Assisi, A.D. 1228. But, besides these, the later examples, though still comparatively early in the style, exhibit a wonderful play of fancy in the form and arrangement of small openings. The little isolated tower at Laach contains a curious variety—trefoil, quatrefoil, fan-shaped, quatrefoil in a diamond, trelobed, and octagonal; but these are chiefly small openings placed beneath the round arches of the corbel tables.

* Compare San Donato at Murano, Venice; SS. Giovanni e Paolo, Rome; San Fedele, Como, Chiaravalle, near Milan, &c. &c.

On looking closely into the details and mouldings of early German churches, we recognise the propriety of the term "Romanesque." In the cornices we find the hollow and round alternating, with the dividing fillet constantly occurring, while all the base mouldings follow the Attic type. The capitals, we admit, though individual and spirited designs, and of great variety, are often carved after Classic models; but the simplicity of the whole, and the richness attained, without the sacrifice of this great virtue, is a principle certainly not copied from the later efforts of the Roman Empire.

We cannot doubt that the interiors of these churches received the best decoration of the age. De Lassaulx, in his remarks on St. Gereon, Cologne, speaks of a church on the spot in 595, "named after the Golden Martyrs, probably because this church, like many others at that period, contained mosaic pictures on a gold ground;" and "Bishop Carentius is celebrated in a poem, as the restorer of golden temples." The present decagon of St. Gereon is decorated with colour: traces of colour also remain on the caps of the shafts, &c. at Laach Abbey. It cannot be supposed that large vacant spaces of wall would remain undecorated with fresco, when we remember how they were assigned in the Basilicas and Italian buildings of the same class as these, to display the powers of the artist. The spirit of revival in the present day and the spread of the arts at Munich, the capital of a state which possesses the largest Romanesque Cathedral, at Spires, have been the means of restoring this last-named building to something like its former grandeur, if not indeed surpassing in completeness any previous period of its existence.

After the paper had been read (at the Institute of Architects), Mr. G. G. Scott observed that in his visits to Germany he had generally been in search of architectural specimens of the thirteenth century, and had therefore paid less attention to the interesting edifices described by Mr. Hayward. He might suggest, however, as an interesting inquiry to antiquaries, an investigation of German architecture even before the period now referred to. For example, nothing was known of the architecture of the Franks between the days of Clovis and Charlemagne—a period of 400 years—which, so far as he was aware—was not illustrated by any existing remains. There were also very few examples, indeed, from the time of Charlemagne to that of Otho I. Many existing buildings—as St. Castor at Coblenz, &c.—were mentioned as *founded* in that era; but so small a portion of these buildings, as they now stand, were really of that date, that none but a very careful antiquary could find it. The accuracy of the term "Lombardic," as applied to this style of architecture, was also an interesting question. He confessed that he could not bring himself to believe in the great antiquity assigned to San Michele, &c. at Pavia, in which the style was supposed to have originated. These were ascribed by Mr. Gally Knight to the seventh century; but, inasmuch as the north of Italy was desolated by the Huns in the tenth century, and as the churches of Pavia so closely resembled those upon the Rhine, he (Mr. Scott) thought it more probable that Otho I. had been the originator of the early churches in both countries. The most probable date for the early Romanesque churches of Germany was the period of the three Othos (from about A.D. 960, to about A.D. 1000), although some of them were doubtless founded upon earlier churches. In fact, the *best* specimens of Romanesque in Germany were of extremely late date. He imagined that the church of Laach—referred to by Mr. Hayward—bordered upon the transitional period; and the best and richest specimens at Cologne were of the same date. The workmanship of the German Romanesque appeared to be far superior to that of the corresponding style [Norman?] in England; but the style flourished in Germany till a much later date than in this country. The Abbey of Heisterbach (which was pure Romanesque) was, indeed, not finished till about 1230. Notwithstanding these facts, antiquaries had persisted in regarding the Gothic as a German style; whereas Germany was twenty years behind England, and at least fifty years behind France, in its adoption.

Mr. Loekyer, Mr. Twining, and Mr. Papworth having made some observations,

Mr. Hayward said that he had been careful in deriving the origin of the Romanesque style from the antagonistic principles of the Basilican style at Rome, and the style of Byzantium itself. He did not derive the Romanesque of other countries from Germany, but spoke of its peculiarly grand development in that empire. Mr. Hayward referred to some dates in support of his views:—S. Sophia, Constantinople, and S. Paul, without the walls, at Rome (both before A.D. 400) might be taken as the two types from which the Romanesque style sprang. S. Vitale, at Ravenna, was copied from S. Sophia, and the church at Aix-la-Chapelle from S. Vitale. Charlemagne died in 814, and if he built the parts now remaining of Aix-la-Chapelle, and was also connected with Lorsch, he must have introduced the style into Germany. With regard to the churches of Pavia, he believed that the peculiar style of the ornaments and carving indicated a date very soon after the decline of the Roman Empire. S. Giulia, Brescia, S. Frediano, Lucca, and many other churches were assigned to the same period as the churches of Pavia, the eighth century and the connection between Pavia and the Carlovingian Sovereigns of Italy in the eighth century afforded, as he believed, a good reason for the introduction of Lombard architecture into Germany. Coblenz followed about thirty years after Aix-la-Chapelle, and in the tenth century the great cathedrals of Worms, Maintz, and Spires, were founded, in all of which parts of the original work remained. In the Island of Torcello, near Venice, the cathedral and a neighbouring church, S. Fosca, presented respectively the distinct types of the Basilican and the Byzantine styles; although they were ascribed to about the same date. The year 1100, the age of the first Crusade, is the great central date for the Romanesque development—while *in England*, Tewkesbury Abbey, the Cathedrals of Gloucester, Worcester, Durham, Salisbury, Canterbury, Norwich, and the curious brick Church of St. Botolph's Priory, at Colchester, were in course of erection. *In Italy*, the Cathedral of Modena, &c. *In Sicily*, that of Messina, &c. *At Jerusalem*, the Chapel of Godfrey of Bouillon. *On the Rhine*, Laach Abbey, Maintz, Worms, and Spires Cathedrals, are supposed to have been in progress.

The year 1125—a quarter of a century later, is the date of the Apse of S. Donato, at Murano.

Of the year 1150—after the second Crusade, we have *in England*, Iffley and St. Sepulchre's, Northampton. *In Italy*, the Baptistry of Pisa. *On the Rhine*, the Church of Schwartz Rheindorf.

The year 1175—*In England*, the Galilee, Durham, and parts of the Temple Church. *In Italy*, the Tower of Pisa; and just before 1200, the Cloisters of St. Paul's without the walls, and St. John Lateran, Rome. *In Germany*, the Chapel at Murrhardt.

The year 1200—just after the third and before the fourth Crusade—*In England*, parts of the Cathedrals at Lincoln, Ely, and St. Albans. *On the Rhine*, Boppart, Limburg on the Lahn, &c.

The year 1210—*In England*, Beverley and Salisbury. *In France*, Amiens, Notre Dame, Paris, &c.

The year 1220—*On the Rhine*, Coblenz, Sinzig, Heisterbach, Gelnhausen; *at Cologne*, St. Gereon, &c.; *and in the Breisgau*, that marvel of the next style, Freiburg Munster, commenced after the fifth Crusade.

The year 1230—We have the return of the German influence, southwards; and *in Italy*, the Church of San Francesco, at Assisi, the first built in the style of the "*Gotico Tedesco*."

Thus we see that the great consummation of the style at Boppart and Limburg, was about the year 1200, when England had made a great advance upon the Romanesque. After that period came Heisterbach, &c. and the style went on improving till the German taste was reimported into Italy, in the Church of S. Francisco, at Assisi, about the year 1230. There could be no question that that church was built by German architects and German workmen: it was the first really Gothic church in Italy, and the parent of all the others.

Mr. Fergusson remarked, that the history of Lombardic architecture had been more fully investigated by Rumohr, than by any other writer. In his work, a distinction was drawn between the Longobardic and the Lombardic styles. Of the former he stated that no remains now exist. It comprised the buildings erected before the time of Charlemagne (from the sixth to the nine centuries inclusive), but these, as Italy increased in wealth, were all pulled down and rebuilt. San Michele, Pavia, was, in Rumohr's opinion, erected in the eleventh or twelfth century, the materials of the previous church being employed, and these were in many instances reversed. There were many Romanesque churches in Italy, and a complete series of them might be found in the churches about Rome; but there were no *Gothic* churches in Lombardy till after the beginning of the eleventh century. It should be observed, that the Valley of the Po and the Valley of the Rhine belonged to the same empire from the time of Charlemagne downwards; and the same style prevailed in the one district as in the other, the churches being nearly identical. It was not correct therefore to say, that the Rhenish churches were derived from Lombardy, or the Lombard churches from the Rhine. In England the case was different, our Norman architecture being clearly derived from France.

THE STREET OF GLASS, AND METROPOLITAN COMMUNICATION.

THE details of the startling scheme for the improvement of London, to which we briefly referred some weeks ago, were promulgated by Sir Joseph Paxton, at the meeting of the Parliamentary Committee, on Thursday, the 7th, and highly interesting they appeared to be, not only to the members of the committee, but to an influential audience as well. The leading features of Sir Joseph's plan are so daring, and they involve such weighty interests, that he would be a rash man who would venture to pronounce a hasty judgment upon either their complete desirability, or practicability. Certain it is, that this great metropolis cries aloud for some monster remedy for monstrous anomalies, and that the vices of defective arrangement, which Evelyn, Wren, Gwyn, Nash, Pennythorne, and others have successfully denounced, have descended to our own days with accumulations of deficiency quadrupled at least by compound interest. It would be impossible to convey a more just idea of the outline of the scheme to our readers, than an analysis of the projector's own statement would afford, and such an analysis we shall proceed to condense from our note-book.

Sir Joseph commenced by stating that London has absolutely overgrown its leading thoroughfares; that at the present time it took as long to get from one side of London to the other as it did to get from London to Brighton; and that it was daily becoming more and more indispensable that adequate means of transport east and west, and from railway terminus to railway terminus, should be provided. The scheme proposed to the committee embraced two distinct and yet connected features—the one a girdle railway of 10¾ miles in length, embracing the heart of London, and the other a main artery traversing it nearly from west to east.

Such was the value of ground and vested interests in London, that it became absolutely necessary that all properties should be avoided the fee-simple of which was likely to be excessively costly; and it would be found that the line proposed for both one and the other, carefully avoided interference with existing lines of thoroughfare, or buildings of importance. The girdle was proposed to start from near Moorgate-street, to cross Cheapside and Cannon-street, and pass over the river near Queenhithe: thence it was to traverse Lambeth, to which district it would do infinite good, and effect a junction with the South-Western terminus. It would again span the river near the Houses of Parliament, approaching closely to Victoria-street; thence onward through Brompton to Gore House, and the new National Gallery that may be. From Kensington to Westbournalia it would stretch through Kensington-gardens in the form of a beautiful conservatory, providing at the same time a line of communication more needed than almost any other in the metropolis. After reaching the Great Western terminus, it would diverge a little through Marylebone successively to the North-Western and Great Northern, from which last terminus it would return, by way of Islington, to its starting point. The great artery, one mile and three-quarters long, would run from the South-Eastern station, at London-bridge, to the Regent-circus, crossing the river near the Hungerford Suspension-bridge. The section of the whole of both lines, excepting where the girdle crossed Kensington-gardens, was proposed to be nearly that of the transept of the Exhibition Building of 1851. Of this section, the central portion, 72 feet in width, with its arched roof in glass and iron, 108 feet high, would be reserved for road and footway. The 48 feet width on each side would be filled in as residences, with shops, &c. each having a frontage of 30 feet. The 24 feet widths, on the outside of these, would afford offices, &c. on the ground-floor for the residences; and on the first and second floors of this building, which would be erected independent of, although attached to, the residences, double lines of narrow-gauge railway would be laid. Thus, a noble street, answering to a Boulevard, would be created, in districts where improvement is most wanted; and at the backs of the houses a railway would run, the eight lines of rails provided by which would allow passengers to travel in either direction, at express speed, stopping only at some of the main points on the line, or at an ordinary pace, detaching carriages at short distances, as on the Blackwall line. The railway would be worked on the atmospheric system, for the efficiency of which Mr. Robert Stephenson and Mr. Edwin Clark would vouch, and thus all the puffing and blowing would be avoided. The carriages all running, as it were, in an enclosed corridor, would be of a much lighter description than those in ordinary use. The line would be used during the night for slow goods traffic, which would not be permitted either on the railroad, or on the roadway of the streets, after certain fixed hours in the morning. Sir Joseph went into minute details to show the purity of the air, to be breathed by the inhabitants of the Boulevard, and the light and ventilation of the whole. The superstructure of the bridges was to be similar in section to the general line, and they were to be made one of the most remunerating features of the whole scheme. Intersections on a dead level were to be made with all thoroughfares crossed by the lines of Boulevard, the houses of which were of course to stop, and the railroad alone run over at a height of about 25 feet from the ground.

The amount necessary to carry out the entire scheme, including every expense, was estimated at 34,000,000*l.* sterling! It was recommended that a portion only of the entire scheme should be undertaken in the first instance, *i.e.* the whole of the main artery from London-bridge to the Regent's-circus, and an instalment of the girdle from Moorgate-street to Westminster. This portion, amounting to 3 miles 5 furlongs, had been carefully surveyed and estimated for, at a total expense, including every outlay, of 11,307,941*l.* This estimate was analyzed by the committee, and many curious particulars were elicited. The bridges, for instance, were valued respectively,—the Queenhithe at 406,500*l.* the Westminster at 638,000*l.* and the Strand bridge at 754,800*l.*—a tender for its construction having been obtained at 600,000*l.* The buildings and railway were taken at 1,000*l.* per yard running; and the construction of the roofing for the great Boulevard at 45*l.* per yard forward. On going into the calculations as to the returns on the capital invested, of 11,000,000*l.* and a third in round numbers, it appeared that an annual income of 937,972*l.* might be looked forward to; this income being made up of 124,000*l.* the rental of the houses on the three bridges, 510,000*l.* the rental of the whole of the remainder of the houses on the *boulevard*, and 303,972*l.* from the estimated passenger traffic on the railway,—nothing being taken for the value of goods traffic. The rent of the houses, 30 feet by 48 feet on plan, and about 60 feet high, was assumed at 400*l.* in most cases, and, in some few exceptional instances, at 500*l.* and 600*l.* each. Details were gone into to show that by comparison with the rents of similar houses in leading thoroughfares, these rates were moderate. The estimate for passenger traffic was based upon some interesting statistics of metropolitan locomotion.

Sir Joseph then came to the true "crux" of the whole matter,—the question of "ways and means." He conceived that the requisite capital for such an undertaking might be raised in three several ways: first, by private enterprise; second, by local guarantees given by those whose local interests would be specially affected; and, third, by a Government guarantee of 4*l.* per cent. per annum. The first he considered, at the present moment, impracticable; the second exceedingly difficult, owing to probable jealousies and bickerings, and the want of a general confidence on the part of the public in the parties offering the guarantee; the third he considered would be effectual and justifiable, since the benefit this great junction would effect would be not for London only, but for the whole country. The time of every visitor from the country was now so sacrificed, owing to the difficulties of locomotion, that an annual loss was sustained by the country, the value of which it was really impossible to estimate. Sir Joseph argued that for many years past foreign Governments have been drawing annually millions of capital from this country, by offering guarantees at a high rate of interest, and with what results? In the case of France, the State had guaranteed no less than 32,850,000*l.* sterling, and had never been called upon to pay one franc of indemnity: it had thus obtained the means of developing the resources of the country to an incalculable extent, and contributing to the comfort of the whole population, without drawing a penny from them in taxation on that account. Unless our Government is willing to adopt some similar wise provisions in time, it is certain that those very superabundant means of ours will be drawn off to enrich our neighbour's land, which might with infinitely more beneficial results to us nationally, be expended upon the fertilization and adornment of our own soil.

CHURCH-BUILDING NEWS.

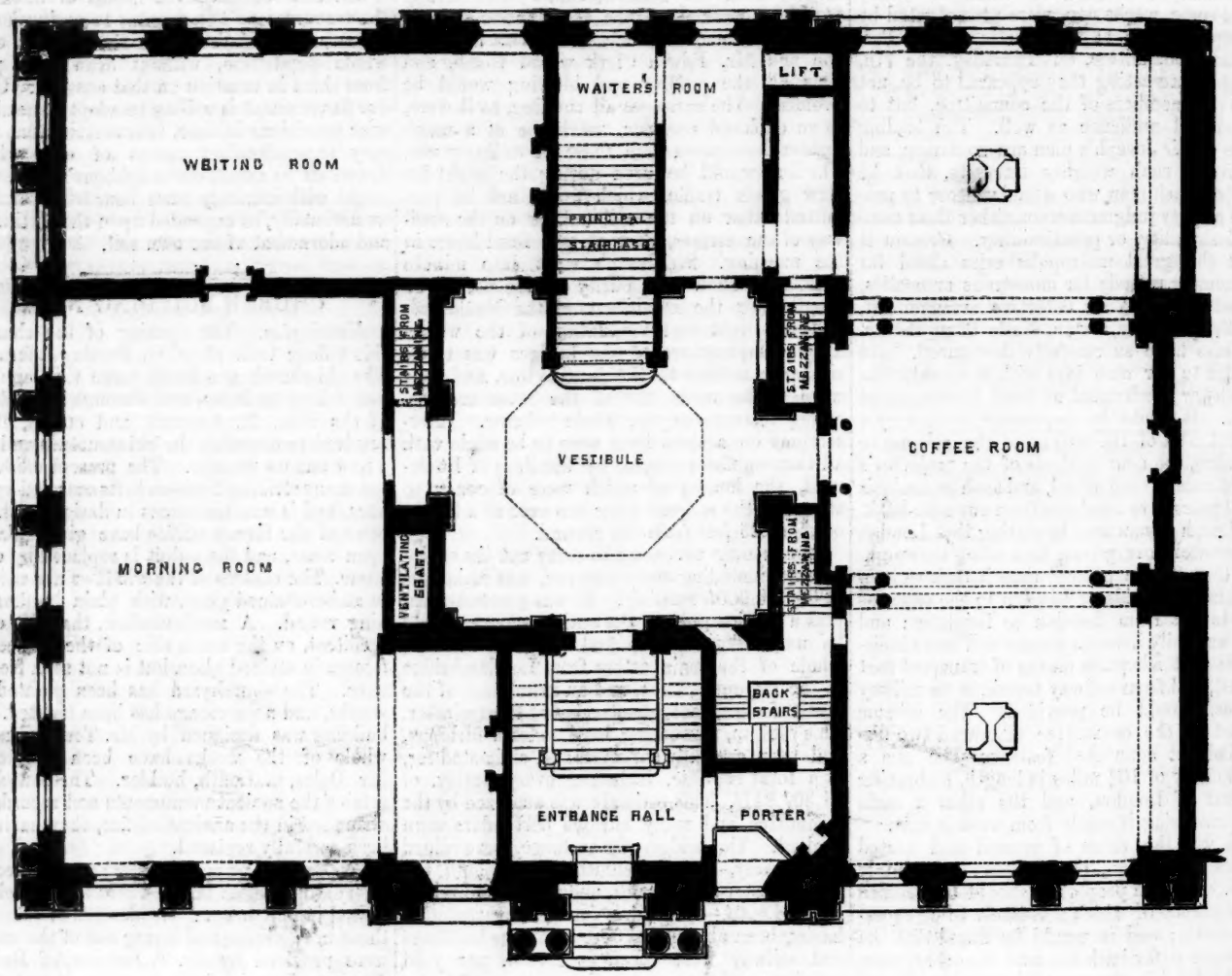
Harrington.—The opening of the church of this village took place on Sunday before last. The old church was found some time ago to be fast falling to decay, and, through the influence of the Rev. R. Cracroft and others, it was resolved to demolish the old structure and erect a new one on the site. The present edifice has not many striking features in its outward appearance, and is unostentatious in design. The old pews of the former edifice have given place to open seats, and the pulpit is replaced by one of stone. The centres of the windows are executed in amber-stained glass, with plain borders running round. A small window, the gift of the architect, on the south side of the chancel, has figures in stained glass, but is not seen from the nave. The churchyard has been planted with shrubs, and a parsonage has been erected. The building was designed by Mr. Teulon, and the whole of the works have been erected by Mr. Dales, of Louth, builder. The church still retains the ancient monuments and records that abounded in the ancient edifice, they having all been carefully replaced.

Bedford.—The new cemetery was consecrated on Tuesday before last. There are two chapels united in one tower: the designs of these, and those of the lodge and laying out of the ground, were provided by Mr. T. Jackson, of Bedford. The cemetery is eighteen acres in extent, on Foster's-hill.

Mollington, by Banbury, Oxon.—The church here is about to undergo a thorough renovation, and to have the addition of a new north aisle and new sacristy. The body of the church will be repaved with black, red, and buff paving-tiles, and rearranged with new open benches, the greater part free. The chancel will be partly rebuilt with new open-timber roof, and will have new fittings and a new east window. The architect is Mr. William White.

Knightwick-cum-Dodenham.—The church of this village was consecrated on Friday before last, by the Bishop of Worcester. Mr. Freeman, of Gaines, presented the site of the new church, and about 1,000*l.* is raised to defray the cost of erection. The estimate for the church itself was something under 900*l.* but the cost of the new mortuary chapel will be considerable. Mr. Perkins, of Worcester, was the architect: Mr. Norman contracted for the masonry; Mr. Shelswell for the carpenter's work; Mr. Chambers for the plumbing, &c. and Mr. Crump for the ironwork. The site of the church is immediately at the base of the hills, and about midway between the old church and Dodenham chapel. Rubble stone for the walls was got from the hills: a white stone from Bromyard Down was selected for the buttresses; and the facings, bell-turret, and spire are of Bath-stone. The church consists of chancel, nave, and vestry, with entrance porch. The length of the building is 70 feet; breadth, 21 feet; height, 38 feet to the point of the roof. The style of architecture is Early Decorated. The east window is of three lights, with three quatrefoils in the head, and bosses carved by Moyson, of Birmingham. The nave is lighted by three two-light windows on the south, and two on the north; and the west wall has two single lights, with double trefoil heads. There is an open timber roof throughout, that of the chancel resting on moulded stone corbels. Underneath the sittings the flooring is of wood, elsewhere of coloured tiles. Externally the walls are supported by buttresses of two sets-off between each window, those of the east wall being

PLAN OF THE CARLTON CLUB, PALL-MALL.



diagonal and all the others set square. The roof is of steep pitch, surmounted by Broseley ridge tiles, with ornamental points, in triplets. Floriated crosses, in Bath stone, ornament the east gables of chancel and nave. The spire, at the west end, is octagonal, and 62 feet high.

Exeter.—The church of Clyst St. George has for some time past been undergoing thorough restoration, under the superintendence of the rector, with funds contributed by the landowners and parishioners, and subscriptions raised in the neighbourhood. Four of the windows have been given, and lately another in the north aisle has been filled with stained glass, from the establishment of Mr. Ward, of London. The window consists of several small panels, containing figures set in an ornamental pattern, the foliaged scrolls of which run over the quarried ground, and are enriched with flowers and other objects in pot-metal glass. The style adopted is that of the early part of the sixteenth century, to which the material is admirably adapted. The work is well spoken of. It is set up as a memorial to Walter Brydges Ellacombe, late of Oriel College, the youngest son of the present rector. All the figures have been designed and painted, as we are informed, by Mr. Hughes, in connection with Mr. Ward. In a lower compartment of the middle light (for there are three) Christ is represented as comforting the afflicted sisters on the death of Lazarus, with the words, "Thy brother shall rise again;" immediately above which, on a scroll surrounding the brazen serpent—emblem of the atonement—"and I, if I be lifted up, will draw all men unto me." And in an upper panel is a chorus of angels, under which the words, "He shall give His angels charge concerning thee." The bench ends are all variously carved in oak, after old designs; the heraldic devices, where they occur, being blazoned in true colours.

Sheffield.—On Tuesday before last the new church in the thickly populated parish of Moorfields was consecrated by the Archbishop of York. The principal external feature is an octagonal bell turret, which rises to a height of 82 feet. The designs and directions of Messrs. Flockton and Son, of Sheffield, the architects, have been carried out by Mr. George Smith, of Sheffield, the contractor. The accommodation consists of 353 free, 314 appropriated, and 238 children's sittings. The cost of the new edifice is 2,000*l.* exclusive of the bell tower, which is 100*l.* additional, and was given by Mr. J. Grant, of Darnall. To this outlay must be added the cost of the land, 555*l.* and the expense of stoves, gas, church furniture, &c. Somewhere about 100*l.* is the present total deficit. The church is called St. Jude's.——On the same day was consecrated the church of St. Matthew, in the district of Carver-street. The church of St. Matthew has been erected with more than ordinary rapidity. The foundation-stone was laid a year ago, and the edifice is now completed with the exception of the spire, the capital of which remains to be added. The church consists of nave, aisles, chancel, with side chapel for children; vestry, with the tower and spire at the western extremity. The Perpendicular style of English architecture has been adopted. The building occupies the whole of the site, extending from Carver-street to Back-fields, and consequently, there are no windows in the side walls. There are no galleries except a small one in the tower. The spire, which springs from the octagon tower, will, when completed, reach a height of 125 feet. The church contains 273 appropriated and 308 free sittings, and seats for 150 children. It has been erected by Mr. J. Powell, Messrs. Dutton and Heald having executed the carpenters' work. Messrs. Flockton and Son, of Sheffield, are the architects. The cost of the site for the new church was 600*l.* and the total expenditure upon the edifice amounts to 3,164*l.* of which about 300*l.* remain to be subscribed.

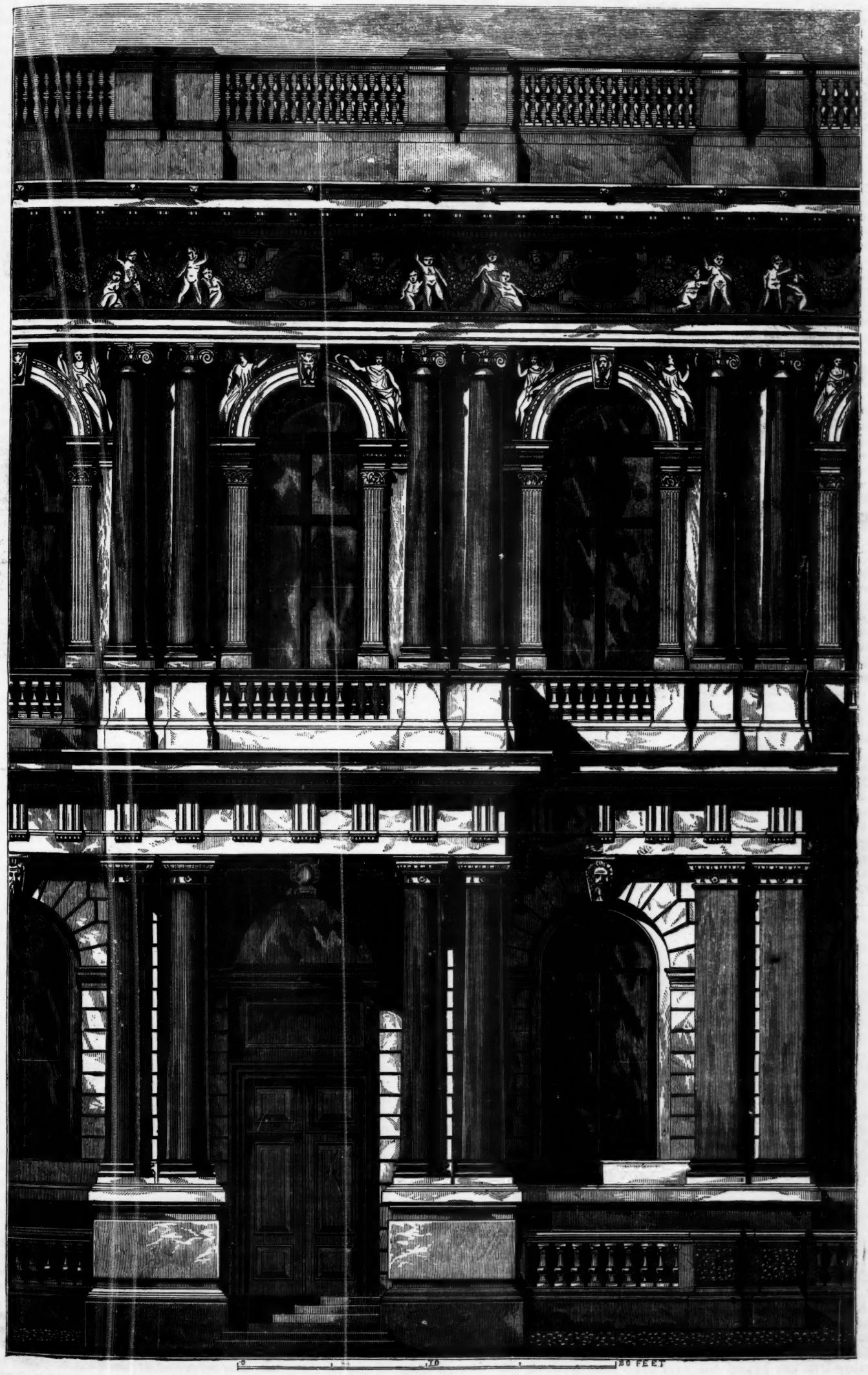
THE CARLTON CLUB-HOUSE, PALL-MALL.

THE west wing of the Carlton Club was built in 1846, with a view to form a part of the future design, which has just now been carried out, under the superintendence of Mr. Smirke.

In our volume for 1847 (p. 219), a general view of the design was given, with some particulars: we now publish a view of the central part of the Pall-mall front, to show the details more clearly, together with the plan of the ground floor, comprising the coffee-room (first erected), the hall, vestibule, and staircase, the morning room, and the writing room.

Many predictions were then ventured upon as to the perishable nature of the lustre of the polished granite shafts; but these predictions have been all falsified by time; nine years' exposure having produced no effect whatever on the polished surface. Probably the polish itself is the protection of the granite, by preventing moisture from hanging on the surface. The recent works, now nearly completed, have been performed with great rapidity by Mr. Kelk, eleven months only having passed since the contract works were actively commenced. The carving has been executed by Mr. John Thomas.

The Club will take possession of the building on the 1st of July, with the walls in a bare state,—all the interior painting and decorating being deferred until the autumn. Contracts for these finishings have been entered into with Mr. Bielefeld, Messrs. Collman and Davis, Mr. Webb, and others.



THE CARLTON CLUB, PALL-MALL.—MR. S. SMIRKE, A.R.A. ARCHITECT.

PROVINCIAL NEWS.

Southampton.—The new jail for Southampton has been completed. It is in the Tudor style, and adapted for the reception of 100 prisoners on the separate system, each having a cell 13 feet long, 7 feet wide, and 9 feet high; sixty-six of these being for males, and thirty-four for females. There is also a separate wing or building for debtors; and thus far the whole may be said to be arranged after the Model Prison at Pentonville. The cells are divided by a wall two bricks in thickness, while the outer walls are two bricks and a half. The ceilings are formed of brick arches in cement, covered over by a bed of hard concrete, upon which is laid the asphalte floor of the cell above. The window-frames are of cast iron, and fixed, glazed with rough obscured glass, having outside two bars of wrought iron, so placed as not to intercept the light, and the doors are of double thickness. Internally, each cell is fitted with a water-closet, and a fixed wash-hand basin of copper, both supplied from a cistern under the roof, into which are measured daily six gallons of water, being the regulation allowance for each prisoner. The boundary-wall is of brickwork, 18 feet 6 inches high, and within it are built the police station for the St. Mary's district, a house for the governor, and two castellated lodges, which flank the entrance gateway. The area enclosed within the walls is nearly two acres. The entire cost, including purchase of ground and other expenses, will be under 22,000*l.* according to the *Hampshire Advertiser*, which names Mr. Critchlow, of Southampton, as the architect, and Mr. Bull, of Southampton, as the builder.

Wolverhampton.—The failures in the iron trade in this district, coupled with the want of confidence caused thereby, have created a great depression in the building trade, which is being severely felt. Most of the large builders are making now for "stock," while the small builders have scarcely work for a man.

Dudley.—According to a correspondent, another *temporary* station has just been put up, in which are now located the South Staffordshire and Oxford lines. A bridge, which has been thrown across all the lines, now gives access from Tipton, &c. as well as Dudley, without making a circuit. The whole of the erections are of timber, apparently designed by a backwoodsman.——Mr. Lee has been appointed consulting engineer to the Local Board of Health, and is expected down in a few days, to arrange the plan of drainage.

Evesham.—A temporary wooden bridge has been erected, the old bridge demolished, and the new bridge is in progress. The new bridge is being built of rock-tooled Littleton stone, regularly coursed, with Derbyshire stone for springers, arch quoins, string courses, fascia, and coping of parapet. It will consist of three arches, the centre one of 66 feet span, and a rise of 12 feet; and two side arches, each of 58 feet span, and a rise of 10 feet 3 inches. The voussoirs will be chamfered. The piers will be 8 feet thick, with semicircular ends that project on each side of the bridge. Between the abutments the bridge will be 199 feet long, and the water-way 182 feet, which is somewhat smaller than the water-way afforded by the old bridge as far as breadth is concerned, but the openings of the arches will be much more capacious for carrying off the floods. The arch will stand about 17 feet 6 inches clear above the level of ordinary low-water, about 6 feet above ordinary floods, and 3 feet above the highest floods. The roadway will be more than twice as wide as the roadway of the old bridge: it will be 30 feet clear inside the parapets. Outside the abutments the approaches will be bounded by wing walls of Littleton stone. The masonry under the road will be coated with asphalte. The plans for the bridge were prepared by Mr. J. Samuel, of London, engineer; and the contract was taken by Mr. Taylor, of London, at 8,865*l.* for the erection of the new bridge, after taking down the old and providing the temporary wooden bridge.

Great Budworth (*Cheshire*).—New schools and residences are about to be erected near the church, and upon land given by Mr. R. E. E. Warburton, of Arley Hall. The schools are for 100 boys and eighty girls, and in the form of a parallelogram, with class-rooms and entrance-lobbies returned at each end; to be constructed of brick, with moulded jambs, arches, and mullions to windows, and open timber roofs. Red, white, and black bricks will be laid in bands and patterns, both externally and internally. Mr. William White is the architect.

Clitheroe.—The works for the supply of water to this borough are progressing, under the directions of the engineer, Mr. M'Landsborough, of Bradford. Of 20,000 yards of pipe-laying required, upwards of 6,000 have been completed. The supply reservoir has been commenced. The water springs from the sandstone strata of the fells. From these sources it will be conveyed, by means of earthenware pipes, to supply the reservoir, and thence to and through the borough, by iron pipes, coated with enamel. The works are being carried out by a private company, for which an Act was obtained last session.

Gainford.—The new building for the Gainford Literary Institute, says the *Darlington Times*, was opened on Whit-Tuesday. It is of stone, from a design by Mr. Gibson, of Newcastle-on-Tyne, architect; the masonry executed by the late Mr. N. Adamson; and the carpentry by Mr. Thomas Nicholson, jun. both of Gainford. The site was presented by Mr. R. Hodgson, of Beverley, a native of Gainford. The village contains only 600 inhabitants, yet more than 500*l.* have been raised and expended in two and a half years by its Literary Institute.

Chester-le-Street.—The following estimates, says the *Gateshead Observer*, were received by the Board of Guardians for the erection of the new workhouse, designed by Mr. M. Thompson, of Newcastle, architect:—

Dunlop	£4,404
Neil	4,400
Glendinning and Co.	4,265
Pearson	4,145
Curry and Gibson	3,893

Quantities were not supplied. Messrs. Curry and Gibson's tender was accepted.

Wigan.—The foundation-stone of new Wesleyan Sunday and day schools, to cost 2,200*l.* was laid at Wigan on the 30th ult.

MEMORIALS OF OLD LONDON.

SEVERAL leading bibliopoles have made a practice, we observe, for some years past, to accompany their catalogues of old books with sundry bibliographical, biographical, or facetious paragraphs. Picked up, as these are, by the modern Wynken de Wordes from all sorts of curious and sometimes out-of-the-way books, fragments are often to be met with of much more than a passing interest. From the "Fly-leaves" of Mr. Miller, of Trafalgar-square, we have detached some facts bearing upon the dwellings and characteristics of ancient London, such as pertain to our department of antiquarian reminiscence.

Old House in Tothill-street, Westminster.—The "Cock" public-house in this street is traditionally said to have been the pay-table where the workmen received their wages at the building of the Abbey, in the time of Henry III. The rafters and timbers are principally of cedar. It was formerly entered by an ascent of many steps. In the parlour there is a massive carving of the Adoration of the Magi in solid oak, very ancient; and an *alto-relievo* of Abraham offering up Isaac, which is let into a slab, but has less of artistical design in it than the former. There is a curious hiding-place in the staircase. [Illustrations of this house, and some additional particulars, will be found in the *Builder*, Vol. X. pp. 345 and 393.] "This little ancient hostelry," says the Rev. Mackenzie Walcott ("Memorials of Westminster"), "bore probably the sign of the 'Cock' (of St. Peter) upon the pillar." Most of the old signs were religious charges, or the arms of kings or noblemen in the neighbourhood: such as the "Salutation" (of the Blessed), Son); the "Chequers," in Abingdon-street, the bearing of the earls of Arundel, who at one time were empowered to grant licenses to public-houses. We also read in the old parish books of the "Bell," perhaps named after great "Westminster Edward;" the "Maiden Head;" the bust of Our Lady; the "St. George and the Dragon;" the "Swan;" and the "Antelope," the badge of King Henry V.; and the "Sun," that of King Richard II. The "Blue Boar" was the cognizance of the earls of Oxford.

St. James's-square.—The author of a "Tour through the Island of Great Britain" (Daniel Defoe), second edition, 1738, gives us the following particulars of this locality:—"The alterations lately made in St. James's-square are entitled to our particular notice. It used to be in a very ruinous condition, considering the noble houses in it, which are inhabited by the first quality. But now it is finely paved all over with heading-stone. A curious oval basin, full of water, surrounded with iron rails, on a dwarf wall, is placed in the middle, mostly 7 feet deep and 150 in diameter. In the centre is a pedestal, about 15 feet square, designed for a statue of King William III. The iron rails are octagonal, and at each angle without the rails is a stone pillar, about 9 feet high, and a lamp on the top. The gravel walk without the rails is about 16 feet broad from each angle to the margin of the basin. It was done at the expense of the inhabitants by virtue of an Act of Parliament. The house that once belonged to the Duke of Ormond, and since to the Duke of Chandos, is pulled down, and makes three noble ones, besides fine stables and coach-houses behind, and two or three more good houses in the street leading to St. James's Church. This noble square wants nothing but to have the lower part of it, near Pall Mall, built of a piece with the rest, and the designed statue to be erected in the middle of the basin.

Old House in Drury-lane.—In Aggas's and Hoggenburgh's plans of about 1570 and 1584, Drury-lane is represented at the north end, as containing a cluster of farm and other houses, a cottage, and a blacksmith's shop; and the lane in continuity to Drury-place forms a separation from the fields by embankments of earth, something like those of Maiden-lane, Battle-bridge. It was, in fact, a country road to Drury-place and the Strand, and its vicinity. Nearly opposite to Crown-buildings is a low public house, bearing the sign of the "Cock and Pye," which two centuries ago was almost the only house in the eastern part of Drury-lane, except the mansion of the Druries.

Inlaid Floors in England.—In Clavel's "Catalogue of Books," &c. No. 8, June 1676, is the following curious advertisement:—"There is now in the press, and almost finished, that excellent piece of architecture, written by Andrea Palladio, translated out of Italian; with an Appendix touching doors and windows, by Pier le Muet, architect to the French king, translated out of French, by G. R.; also, rules and demonstrations, with several designs for the framing of any manner of roofs, either above pitch, or under pitch, whether square or level, never published before; with designs of floors of variety of small pieces of wood, lately made in the palace of the Queen Mother, at Somerset House; a curiosity never practised in England."

Ancient Mode of lighting London.—John Wardall, by will, dated 29th August, 1656, gave to the Grocers' Company, a tenement called the White Bear, in Walbrook, to the intent that they should yearly, within thirty days after Michaelmas, pay to the churchwardens of St. Botolph, Billingsgate, 4*l.* to provide a good and sufficient iron and glass lantern, with a candle, for the direction of passengers to go with more security to and from the waterside, all night long, to be fixed at the north-east corner of the parish church of St. Botolph, from the feast day of St. Bartholomew to Ladyday; out of which sum 1*l.* was to be paid to the sexton for taking care of the lantern. This annuity is now applied to the support of a lamp in the place prescribed, which is lighted with gas.

John Cooke, by will dated 12th September, 1662, gave to the churchwardens, &c. of St. Michael's, Crooked-lane, 76*l.* to be laid out to the most profit and advantage, for various uses. And amongst them for the maintenance of a lantern and candle, to be eight in the pound at least, to be kept and hanged out at the corner of St. Michael's-lane, next Thames-street, from Michaelmas to Ladyday, between the hours of

nine and ten o'clock at night, until the hours of four or five in the morning, for affording light to passengers going through Thames-street or St. Michael's-lane.

St. Martin's-lane.—The house No. 96, in this street, is one of the oldest shops in London: it has one of the very few remaining shop-fronts where the shutters slide in grooves. The street-door frame is of the style of Queen Anne, with a spread-eagle foliage, and flowers, curiously and deeply carved in wood, over the entrance, similar to those remaining in Carey-street, Great Ormond-street, and a few other places about London. The staircase of this house is curiously painted with a number of figures viewing a procession. It was executed for the famous Dr. Misaubon, about the year 1732, by a French artist, named Clermont. Behind the house there is a large room, the inside of which Hogarth has given in his "Rake's Progress," introducing portraits of the doctor and his wife. [A view of this house will be found in the *Builder*, Vol. X. p. 813.]

Peter's-court, turning out of St. Martin's-lane.—In 1710, the goods of Mrs. Selby, sword cutler, are advertised to be sold, "at the Dancing-school, in Peter's-court, against Tom's Coffee-house, in St. Martin's-lane." This dancing-school was afterwards the first studio of Roubiliac, the celebrated sculptor. There, among other works, he executed the statue of Handel, for Vauxhall-gardens. Upon his leaving the studio, it was fitted up as a drawing-academy, supported by a subscription raised by numerous artists. Mr. Michael Moser was the first keeper. The site is now occupied by a Quakers' meeting-house.

THE NEW METROPOLITAN CATTLE-MARKET.

THE new Metropolitan Cattle Market, in what were formerly Copenhagen Fields, was opened on the 13th inst. by H.R.H. Prince Albert, when more than a thousand persons partook of luncheon, within a marquee erected for the occasion, and addresses were read and speeches delivered. The decorations, in the arrangement of which the architect, Mr. Bunning, was aided by Mr. Fenton, were appropriate and effective.

Mr. Bunning well deserves all the applause which was bestowed upon him on the occasion. The new market is a great work, enforcing admiration as well for the excellence of the arrangements as for the largeness of the general design, and we heartily congratulate him on its completion thus far.

A view of the market, with some descriptive particulars, will be found in our last volume,—No. 617, p. 618.

PLAN FOR AN INDUSTRIAL MUSEUM.

I BEG to submit the following outline of a plan for the accomplishment of two great objects. It would be a waste of time to point out the desirability of a cheaper, more sure, and equitable means of securing industrial copyright: that is already as well known to our manufacturers as the desirability of a museum is to the people generally.

1. I would suggest the establishment of an Industrial Museum, wherein all inventions, processes, and designs, for manufacturers, &c. for which a copyright is claimed, are to be deposited.

2. In cases where the cost of the invention or design would be very great, then a working model of the former, and a plaster cast of the latter (with full description of the material of the original, &c.), might be substituted.

3. Every invention or design to pay an annual rent of 10s. in return for Government protection of copyright, to be continued for any length of time the manufacturer shall see fit.

4. All inventions for which copyright is claimed for any term under twelve months, to pay a uniform rent of 1s. per month, for any number of months the manufacturer may wish the copyright to continue.

5. No models to be removed after the term claimed, unless satisfactory drawings and descriptions are deposited for the purpose of reference in the museum.

The advantages of this plan would be—1. To reduce the first cost of the copyright, enabling all to secure their inventions or designs, by producing a model, and a prepayment of 10s. 2. It would be a just means of attaining this end, for the invention or design would not cost more than it was worth: so long as it continues to "pay," the inventor will pay the rent; and he has clearly a right to the copyright until he is superseded by a better. 3. If a court were held in the museum for the settlement of all disputes relating to copyrights, the jury would have an advantage which no other place would present. 4. It would be a means of rendering an Industrial Museum self-supporting, and in all probability would become a good source of revenue to Government. 5. The surplus fund of the great Exhibition of 1851 might be expended for this purpose with propriety.

W. L. S.

ARBORAL RECORDS OF BUILDINGS.

I HAVE frequently thought of drawing your attention to an idea which has long had possession of my mind, and which, had I property adequate to the requirement, I should be inclined to carry out myself. Let me now give you a notion of it.

In laying out parks and planting trees, might not interesting results be produced if the trees were arranged to *form models of some of our most interesting ecclesiastical buildings?* Take, for example, Redcliffe Church, Bristol. Plant an oak for each of the buttresses, and an elm for each of the pillars, and poplar, or some other lofty tree, at the angles of the tower. It would, of course, be some years before it became very pleasing: still, for the advantage of future generations, perhaps some might be found to do it. Various shrubs and trees might be planted to fill in and carry out the design of different parts, and gravel walks would represent the aisle. Training and cutting the branches properly would be desirable, and, if done judiciously, might prevent formality and stiffness. T. P.

COMPETITIONS.

Cambridge Conduit.—The Town Council, at a special meeting on the 8th instant, selected the design of which Mr. Gordon M. Hills, of London, is the author. Seventeen designs were sent in, and from these three were selected by a committee in which the Town Council of the University and Hobson's trustees were represented; and these three were submitted for the final choice of the Council with the above result.

Cemetery, Weston-super-Mare.—We are informed that the committee have selected the "Round ground" for the new cemetery, and chosen the design of Mr. Davis, of Bath, for the buildings. The estimate was as follows:—Cost of the land, 1,000*l.*; builder's contract, 1,325; gates, 50*l.*; architect's per-centage and journeys of inspection, 100*l.*; planting the ground, 100*l.*; consecration expenses and bell, 80*l.*; making a total of 2,655*l.*

Kingswinford.—The statement in some of the provincial papers that the design for proposed church here has been selected was premature.

Lincoln Cemetery. — The determination of the burial-board to restrict the expenditure for chapel to 500*l.* is greatly reprobated. We hope the board will revise their determination.

Newcastle: St. John's Cemetery.—The burial-board of St. John's, Westgate, and Elswick, having offered two premiums of 20*l.* and 10*l.* for the first and second best designs for building two chapels, two entrance lodges, gates, fences, &c. at a cost not exceeding 4,000*l.* fourteen designs have been sent in.

Ipswich Cemetery.—The proceedings of the burial-board are exciting animadversion. Out of the numerous designs submitted to competition for the chapels and other buildings required at the new Cemetery, the preference was given to the one furnished by Messrs. Cooper and Peck, of London, subject to a condition as to the cost. With a view to ascertain whether this condition had been observed, the architects were requested to get out the working drawings, so that detailed estimates of cost might be obtained. This was done: tenders were advertised for in our paper; and the following were sent in:—

Reuben Lawrence	£1,846	0	0
Edward Gibbons	1,479	0	0
Samuel Simpson	1,416	0	0
Samuel Baldiston, jun.....	1,365	10	0
Henry Luff	1,331	7	0
Searles Cornish	1,330	0	0
John Whight	1,284	0	0

Mr. T. S. Gowing (one of the committee), in a published letter, points out that various alterations have been made in the working drawings, so as to reduce the cost very materially as compared with the design selected, and objects to the allowance of such a course as unjust to the other competitors. The *Suffolk Chronicle*, commenting on the matter, has the following remarks on competition generally:—"On the surface, the principle of architectural competition appears a sound one, and if carried out as it ought to be, it might, no doubt, be made so in reality. It holds out inducements, which stimulate the abilities of architects, and afford a chance for merit to make itself known. Where, then, is the drawback? It is to be found in the general incompetency of those to whom the duty of selection is confided. Only think of a number of gentlemen allowing themselves to be put on a committee of taste without possessing the qualifications necessary to enable them to act. Nothing could exceed the picture of helplessness which the easy, good-natured portion of the committee displayed at the late meeting. They seemed to be conscious of their own insufficiency, and one after the other was fain to shelter himself under the ægis of the consulting architect. The fact is, public taste in this country is not sufficiently advanced to warrant a number of promiscuously selected individuals sitting in judgment upon architectural works. We are deplorably behind our continental neighbours in this respect. People in England are not instructed in the principles of taste: the cultivation of the eye for the picturesque and the beautiful is left to chance: hence, we find in every station men to whom a barn is almost as charming an object as a cathedral, and who can be easily persuaded that to rob a building of all its ornaments, and to alter its proportions, cannot have the slightest effect upon either its external appearance or its internal convenience."

Dudley Workhouse. — The successful competitor desires to say, that he was entirely unknown to the guardians until the envelope was opened.

INSTITUTION OF CIVIL ENGINEERS OF IRELAND.

EXCESSIVE COST OF RAILWAYS.

THE closing general meeting of the institution for this session was held on the 29th ult. Various donations having been announced, a paper was read by Mr. Bower "On the respective Merits of Single and Double Lines of Railway, considered in relation to their Safety, Efficiency, and Cost." The paper advocated the construction of single lines only in this country, they being found sufficient in various parts of the continent where traffic was excessive. He urged their perfect safety with the use of the electric telegraph and under efficient management, and argued that the present distressed state of the railway interest in Ireland was caused by the unnecessary sums expended in construction, to raise which preference shares had in some cases to be issued, to the injury of shareholders, and in others the rates of the country were pledged as security for the outlay. He exhibited a section of a line now before Parliament, 44 miles in length, on which the saving would be 2,500*l.* per mile, or 110,000*l.*

Mr. Hemans stated that he found a single line answer on the Waterford and Limerick Railway, and on the Galway Extension, constructed by him; but he thought it expedient to form double works when money could be had. Mr. Purdon remarked, that a single line was found to answer on the Dublin and Bray Railway, and that in his opinion the Great Southern and Western, or any Irish railway, could be worked with a single track.

USE OF DISINFECTANTS AND DETOXICANTS IN THE CRIMEA.

A FEAR, but too well grounded, prevailed during the past winter and spring, that the immense numbers of the dead bodies of our poor slaughtered fellow countrymen and their allies, French and Turkish, as well as of their horses, slain, as many of their masters were, by starvation, wet, and cold, as well as in battle, would assuredly so pollute the air of the camps, &c. in the heats of summer, as to give rise to deadly disease, unless every care were taken to obviate the evils of imperfect burial, as by the use of quicklime, which could easily be got by burning the limestone strata which abound in the Crimea. Kilns accordingly were formed, and quicklime produced, and we trust profusely spread over the graves of the dead, if not mixed with the remains as it rather ought to be. Under existent circumstances, we think it is to be regretted that a medical man (Dr. Kidd) should have written to the *Times*, condemning this use of lime in the Crimea for the destruction of animal matters. True, lime, as he urges, is not, properly speaking, a disinfectant,—that is, it is not known to be capable of destroying the virus of infectious disease, or of preventing it from being communicated by one diseased but living human being to another, whether directly or through intermediate substances,—and that to this end chloride of lime, as he recommends, is preferable, as the fumes of burning sulphur also, and probably still more so, are; but

that quicklime is a valuable destroyer and fixer of corrupting animal matters there are few who doubt, although Dr. Kidd appears to overlook its fixative power altogether, and speaks of it as merely a dissolver of such matters, leaving them *more active* in producing malaria than ever! Since it *is* a fixative, however, as well as a burner or destroyer of animal remains, and since it can so readily be had in great abundance close at hand, it is certainly indiscreet to throw contempt by wholesale upon its sanitary use, by stigmatising the opinion in its favour as "one of those amiable old-fashioned prejudices which outlive all science." There is a bastard science which is worse than even old-fashioned prejudices. As for chloride of lime, it is certainly an excellent detoxicant, but there will be plenty of other demand for all of it that will ever reach the Crimea, besides the mixing of it with dead bodies, or the covering of graves with thick layers of it. For our own part, so far as regards fevers and cholera, with Dr. Graham we would most earnestly urge the free use of burning sulphur as well as of chloride of lime; and, if to spare, some chloride of lime might, for further security, be sprinkled over the quicklime layers on graves, so as to seize and destroy the volatile poisonous matters that might not be wholly fixed or destroyed by the lime.

ARCHITECTURAL MUSEUM.

WITH reference to Mr. Jopling's paper at the Architectural Museum, we are asked to add to our previous memorandum, that the model full length (101 feet 5 in.) of the curve of the top step, east front, of the Parthenon, and on which is also shown the curve of the *entasis* of the column, will remain until the meeting of the 25th inst. when Mr. Jopling will be in attendance.

On that evening a *conversazione* will be held, when doubtless a report of progress will be made.

Notices of Books.

An Account of the Library of the Division of Art at Marlborough House; with a Catalogue of the Principal Works. By R. N. WORNUM. Printed for Her Majesty's Stationery Office. 1855.

THE librarian at Marlborough House, Mr. Ralph Wornum, has prepared for the Department of Science and Art, and for the use of visitors to the library, a classified catalogue of the principal works now there collected. The library already comprises 5,000 volumes and 100 portfolios of prints, drawings, &c. relating to decorative art and ornamental manufactures of every description; and, as Mr. Wornum truly remarks, "except a special museum of actual manufactures, there can be no more direct agent for conveying palpable ideas to the mind of the artizan; but while the museum is necessarily extremely limited in many respects, the library is in a measure infinite: a single volume might contain more illustrations, in any one department of art, ranging easily over all ages, from the most remote down to the present day, than it would be possible to collect together in any one place at present." To the end, however, that such a library shall be as comprehensively and as promptly useful as possible, a good classified catalogue is an essential. Such a catalogue the students and subscribers connected with the Marlborough House Library have now the good fortune to possess in the present volume of 240 octavo pages, which, therefore, we would recommend one and all of them to purchase. Perhaps it may be advisable, for behoof of those who may or ought to become art-students or subscribers to the museum and library at Marlborough House, to state that all registered students of the central schools of science and art have free admission to this library, as also all subscribers of 1*l.* 1s. per annum to the museum; that the charge for an annual ticket to the library alone is 10s. 6d.; and that occasional students will be admitted on payment of 6d. entitling them to six days' use of the library, or of 1s. 6d. entitling them to a monthly ticket. The library is open every day (holidays and Saturday evenings excepted) from ten a.m. to nine p.m.

An Account of the History and Manufacture of Ancient and Modern Terra Cotta, and of its use in Architecture as a durable and elegant Material for Decoration. By J. M. Blashfield. Weale: High Holborn. 1855.

WE some time since noticed the publication of various engraved copies of modern applications of terra cotta to art manufacture published by Mr. Blashfield. The present pamphlet forms a useful adjunct to such engravings, and gives an interesting account of the ancient and modern applications to which baked clays, &c. have been put, as well as of the proper mode of working and preparing art works in such clays. Amongst other suggestions, Mr. Blashfield says,—

"For terra cotta work a good mould made from the clay is sufficient; but if many moulds are wanted of the same pattern, it is desirable to have a plaster model. For terra cotta work it is not always necessary, when only one or two copies are required, to mould at all: the original models can be built up in a cellular manner, so that it can be dried and removed to a kiln, and baked, being a perfect original work, and the only durable form fit for external use, in which sculpture exists as an original work. If this subject was better understood, there can be no doubt that architects would more freely employ terra cotta, as at the present day they are constantly exposed by the system of moulding to have their designs pirated and stolen. They may design for a public building a piece of decoration to be carved in stone, and from the model casts being made, copies find their way into other hands, and in less than two years they may see the same enrichment in cement adorning a gin palace. Bas-relievi might with great economy be constantly used as decorations, though they are now seldom seen. It would never be necessary to *mould* such work."

Miscellanea.

NEW ORPHAN ASYLUM NEAR BRISTOL.—Adjoining the orphan-house, in which the Rev. Mr. Müller, with the mysterious help of anonymous, and almost unsolicited, donors, has so long supported a host of little orphans, now amounting to 300, additional buildings are about to be erected, as a home for no less than 715 more, who are still to be provided for by Mr. Müller. The addition is to be in two parts, one to contain 400 and the other 300. The cost will be 35,000*l.* and of this large sum Mr. Müller has already managed, by prayer, as he says, to scrape together no less than 23,056*l.* odds. The motto of this man of faith is evidently "Nil Desperandum." Often, he tells us, in his Diary, entitled, "God's Dealings with George Müller," in the morning he had not a penny in hand towards the afternoon's meal of some hundred children, but he had not been long in prayer when some aid, always opportune, but often odd (from the form in which the contribution was made), came to supply the instant need. With a rigid detail, he gives us these timely donations; and we meet with such entries as,—a piece of plate, from a Christian not requiring it; a thousand pounds; a hogshead of treacle; a silver bodkin or thimble; a leg of mutton; a bag of meal, &c. Mr. Müller lately stated, while announcing to an astonished audience his new building scheme, that while there are 6,000 orphans in our jails, there are but 3,764 in all the orphan asylums in England and Wales, thirty-three in number!

EXHIBITION OF THE NORFOLK AND NORWICH FINE ARTS ASSOCIATION.—A fine art exhibition was opened at Norwich on Wednesday before last. If not so extensive as some previous exhibitions, it comprises, according to the *Norfolk Chronicle*, a great many more new and at the same time good paintings than were ever collected together in Norwich. On some former occasions a large proportion of the pictures have been lent merely, but on this occasion, with two exceptions, they are all sent by living artists, and are for the most part for sale, at affixed prices. The gallery presents 300 paintings in oil and 100 in water colours, the greater number being landscapes and scenes from nature, interspersed with some interiors and a few historical as well as dramatic scenes.

OXFORD ARCHITECTURAL SOCIETY.—A meeting of this society was held at Holywell on Wednesday evening before last. The librarian read a letter from the secretary of the Great Western Railway Company, promising every facility on the occasion of another excursion. The secretary of the Worcester Diocesan Architectural Society had communicated the intention of that body to meet in Warwick in July, and members were urged, if possible, to accept the invitation offered. The society was congratulated on the more favourable aspect of its finances. Mr. H. A. Gibson, of Wadham College, then read a paper on "Bells." Mr. Forbes brought before the meeting the state of the Holy Ghost Chapel, at Basingstoke, now completely in ruins, and which some persons are anxious to restore. It was agreed that the annual meeting should be held on June 13th, instead of 18th.

CHIEF STONES.—The foundation-stone of a large building for a Sailors' Home was laid at Dover last week by the Vice-President of the Board of Trade ——The chief stone of the Queen's Free Grammar School at Basingstoke was laid last week by the mayor of the town. The foundation of this charity was laid 300 years since by Lord Sandys, and called the Holy Ghost School, which, till within a few years past, was conducted on the original site contiguous to the old ruins. An inquiry into the charity has led to the erection of the new building.——On Wednesday week the foundation-stone of a new church was laid by the Duke of Bedford, at the west end of the parish of Tavistock, about three miles from the town.—— The foundation-stone of a new church was laid on Monday week on the hill-side of the valley of Tredegar, at Penmaen. Sir Thomas Phillips has given the site, and subscribed 300*l.* towards the building fund. ——On Monday before last, the foundation-stone of a new Wesleyan Chapel, at Harmby, Middleham, was laid.——The foundation-stone of a church which is about to be erected at Teviothead, in the south of Scotland, was laid on the 22nd ult.

TURN-OUT OF CARPENTERS AT CURRAGH.—The carpenters at the Curragh encampment, chiefly Englishmen, in the employ of Messrs. A. and G. Holme, left their work on Monday before last, without notice, and demanded an increase of wages, in consequence of the working hours being reduced to from six a.m. to eight p.m. It appears the men have insisted upon working from four a.m. to half-past eight p.m. claiming one and one-half day's wages; but Messrs. Holme found it impossible for the men thus to do justice either to themselves or their employers, and gave notice that in future the time worked should be from six a.m. to eight p.m. and for which they would be paid one and one-quarter day's wages. After an explanation from Mr. Holme, about 250 of the men returned to work; but about eleven in number summoned Messrs. Holme for expenses back to Liverpool, and also for time lost. The Lord Mayor of Dublin, before whom the case was brought, dismissed it, giving some advice to the workmen. Messrs. Holme are said to have provided every possible comfort for the men, who have a large dining-hall, and are supplied with the best of provisions at Dublin prices, and with beds and blankets at a small charge, besides being allowed to sleep in the buildings, and provided with lights free of cost. The carpenters' rate of wages is said to be 28s. per week, and none less than 26s. and this amount is paid both by Messrs. Holme, and Messrs. Courtney and Stevens, the co-contractors.

CARLISLE SCHOOL OF ART. — A meeting of the subscribers to the Carlisle School of Art, was held in the Town-hall, Carlisle, on Tuesday evening before last, when the secretary read the report of the committee, from which it appears that the school was established in October last, and that its progress has been satisfactory. The average number of students at the Central School of Art has been fifty-nine. Various public and private local schools have availed themselves of the services of the master. At these schools about 366 pupils have received instruction. Some discussion then ensued as to the rules and the funds to be provided. In course of the proceedings, Mr. Hannah reminded the meeting that the art of writing was simply a species of drawing, depending on the cultivation of the eye and the hand, for, in making the twenty-six letters of the alphabet, it was nothing else than making twenty-six imitations. When parents took this into their consideration, seeing that every one thought it essential that their children should learn reading, writing, and a little arithmetic, he had no doubt that eventually they would consider drawing as essential as anything else.

STEAM-BOILER EXPLOSIONS.—Your correspondent "E. C." has drawn attention to a subject which, unfortunately, has for some time been much neglected. Many boiler explosions which have been considered inexplicable, or vaguely referred to a defective safety-valve, I think there is good cause to suppose have proceeded from the water assuming the spheroidal state. How, then, can this be avoided? M. Boutigny proposed the introduction of a great number of metallic points into the interior of the boiler, but this presented many great practical difficulties. I have myself thought that if a number of metal balls were introduced into the boiler, they, by greatly increasing the heating surface, would greatly decrease the danger resulting from this cause. This arrangement would, I think, also reduce the danger to be apprehended from the formation of hydrogen gas.—O. H. H.

IRON STEPS.—Sir, your correspondent, "G. L." of June 2nd, will, I think, find that treads of diamond pattern, constructed with strong wire, and screwed to the main treads, will overcome the difficulties to which he alludes.—C. C.

*** Two other letters on the subject have been forwarded to the inquirer.

THE IRON TRADE.—More failures have occurred in this trade within the last few weeks, but otherwise no material change has taken place in the state or prospects of the trade. There is no talk of any advance next quarter on the lowest price named at last meetings. American orders are not yet returning, but "when the trade has recovered from the effects of illegitimate speculation, it is believed that it will soon exhibit a healthy aspect." Meantime iron has of late been sold at 10s. and even 20s. below the prices fixed last quarter-day.

ARTISTS' BENEVOLENT FUND.—The annual festival of this incorporated association was held on Saturday at the Freemasons' Tavern, the Earl of Harrowby (in the absence of Earl Granville) presiding. The company, although not very numerous, comprised many of our principal artists and patrons of art, including among others Sir C. Eastlake, Mr. C. Stanfield, Mr. D. Roberts, Mr. J. Absolon, Mr. G. Godwin, Mr. G. Clark, &c. The noble chairman, in proposing the chief toast of the evening, "Success to the Artists' Benevolent Fund," dwelt upon the advantage of the institution, which, while it practised benevolence, at the same time inculcated prudence. During the past year the fund had paid annuities of 15*l.* each to fifty-two widows, and granted assistance to twenty-nine orphans of artists to the extent of 187*l.* 10s. In former ages improvidence had been regarded as the necessary accompaniment and distinguishing feature of great talent; but that mistake had passed away, and professional men were upon the whole far from improvident. Still the advantages might be greatly increased; and it was, therefore, desirable, now that such great endeavours were being made to foster art among all classes in this country, that the professors of art, as well as its patrons, should give their assistance to an institution which had such peculiar claims upon them. Mr. Godwin, in replying to a toast with which his name was connected, said he considered the Art-Union of London as of the greatest benefit to artists. It had encouraged a taste for art, and many commercial men who commenced their career in art by gaining a prize in the Art-Union had been led on to become assiduous collectors of pictures. The Art-Union, twenty years ago, raised with difficulty 400*l.*: it now had a steady annual income of 12,000*l.* or 13,000*l.* which was all diffused among artists.——A list of subscriptions, exceeding in the aggregate 350*l.* was read, including 100 guineas from her Majesty.—*The Times.*

MIDDLESEX AND SURREY ARCHÆOLOGICAL SOCIETY.—It has been proposed to extend the range of the Surrey Archæological Society to the county of Middlesex, in order to comprehend within the operations of a single institution the entire metropolis, and also to obtain a complete and careful investigation of the archæology of the metropolitan county. The Surrey Archæological Society has itself been very recently established: its members already are upwards of 400 in number, and its career has been hitherto satisfactory. From a union of the counties of Middlesex and Surrey in a single Archæological Society, there would necessarily result both an increase and a consolidation of strength; the proceedings of the society would be at once more complete and more diversified; and, while each county would secure a distinct recognition for every object peculiarly its own, much of mutual advantage would be derived by them both, from their being associated for the purposes of archæological inquiry and research.

NEWCASTLE SOCIETY OF ANTIQUARIES. — A monthly meeting was held on Wednesday before last, at Newcastle. It was resolved that a country meeting be held on 25th July, at Borcovicus, on the Roman wall. A letter was read from Mr. Dobson, the architect, submitting a plan for the construction of a room below the vaulted roof of the great hall of the castle, to be lighted by a glass dome, whereby additional space would be obtained for exhibiting the possessions of the society. It was resolved that Mr. Dobson be requested to furnish an estimate of the expense.

BRIDGEWATER CHURCH: ARCHITECT'S CHARGES. —We have received a statement from the architect, in answer to Mr. Donaldson's letter in our last, but too late for insertion this week.

THE CRUMLYN VIADUCT.—The works on the line between Pontypool and the viaduct at Crumlyn, are nearly completed, the tunnel being all but finished. The erection of the viaduct is rapidly proceeding, the raising of the various sets of iron girders having been successfully accomplished without any further accident. These girders weigh twenty-five tons, and have to be raised to an elevation of 200 feet. A double line of rails will be laid upon the summit of the viaduct, and in less than two months the whole will be completed. From Crumlyn, on the other side, the line is making rapid progress, and when finished, this loop to the Newport, Abergavenny, and Hereford line, will save some twenty-six miles of distance, and prove a most important feeder.

EXHIBITION AT TIVERTON.—The Bath and West of England Society for the encouragement of agriculture, arts, manufactures, and commerce, having decided on holding their meeting this year at Tiverton, advantage was taken of the circumstance to get up a local exhibition of works of art and industry, the proceeds of which it is intended shall be expended in the restoration of the church of St. Peter, at Tiverton, the surplus, if any, to form a nucleus for the foundation of a local hospital. The opening was inaugurated by a *déjeûner*, in the large hall at Blundell's school, the apartment being decorated for the occasion, and the proceedings enlivened by music. The Exhibition, at the Athenæum, was then opened by a procession, with the Mayor and Corporation at its head, and the various rooms were visited by the company. The room marked A is devoted to antiquities, architecture, sculptures, and pictures: rooms B and C contain about 250 oil paintings and engravings, and statuary: in the passages leading to rooms A and B, are works of art and curiosities; in room D, the "Trade Department;" room E, philosophical instruments; and in F (a small apartment), antographic and printing presses, &c.

TESTIMONIAL TO MR. S. C. HALL.—A number of artists, among whom are Messrs. Stanfield, Ward, Foley, Cooke, Goodall, Harvey, Harding, Helmsley, Inskipp, Hulme, Mason, Paton, &c. propose to obtain subscriptions for the purpose of presenting some suitable testimonial to Mr. S. C. Hall, as an indication of their sense of his services to art and artists, and their sympathy with him, more especially while advocating, as he has been doing, not only in the *Art-Journal*, but in the courts of law, the cause of the profession and the public, *versus* questionable picture-dealers. As the subscribers, in their circular, justly remark, the course Mr. Hall has pursued, for a series of years, as editor of the *Art-Journal*, has been of great service to art and artists, and it is only just and right in the artists and art-lovers generally thus to manifest their feeling in this matter. We have not the least doubt but that the proposal will be warmly and promptly responded to. Mr. F. W. Hulme, and Mr. G. P. Nicholls of 54, Paternoster-row, are the hon. secretaries for the proposed testimonial.

STATISTICS OF VICTORIA.—From a Commercial Almanac recently published at Melbourne, it appears that the quantity of fine gold extracted from the gullies in the colony of Victoria during the three years from August, 1851, to September, 1854, was nine million ounces, which, at 4*l.* an ounce, gives more than thirty-six millions sterling as the wealth added to the world by this infant colony in this brief period. Moreover, the previous staple of the colony, wool, in place of being neglected, as was feared, for "the golden fleece," has, during the very same period, been on the increase. In 1854 the quantity of wool exported was 22,598,688 lbs. being an increase of 633,584 lbs. on the previous year. The value of the total exports from the port of Melbourne during that year was 10,109,292*l.*; of the imports, 16,557,404*l.* Up to September 1st, 1854, 1,266,267 acres of land had been sold. The average price per acre has come down from 5*l.* 10s. in 1853 to about 3*l.* 10s. in 1854. The population of the colony on 26th April, 1854, was 232,872, of whom 17,253 had arrived overland from the other districts of Australia. The town population was 100,891; the mining population 58,046. In 1853 more than two millions of letters and a million and a half of newspapers passed through the Melbourne post-office. The Central Road Board spent, in 1853, 502,078*l.* of which 282,844*l.* were expended on the Mount Alexander road alone. There are two rival educational organizations in Victoria, the national and the denominational, of which the latter is the more flourishing, having under its wing 10,000 scholars and 132 schools, while the former has only 1,753 scholars and 25 schools. In the year 1853, no fewer than 832 mortgages were registered on town and country lands (principally the former) to the amount of 990,797*l.* In Geelong the assessed value of property is 525,020*l.* The general revenue of the colony for the year 1855 is estimated by the Legislative Council at 2,400,000*l.*

THE TYNE DOCK WORKS. — The contracts for making the new docks on the Tyne have been let for about 400,000*l.* The area of the dock will be 48 acres; the basin 9 acres. The directors of the Blyth and Tyne Railway also propose expending 145,000*l.* in coal staiths and other works upon the side of the river opposite to these docks.

TEMPORARY CHURCH, TOTTENHAM. — It is proposed to erect a temporary church, dedicated to St. Paul, in Northumberland-park, Tottenham, Middlesex, under the superintendence of Mr. Chas. Gray. The following tenders have been received:—Fidler, 599*l.*; Clemena, 595*l.*; Blenkarn, 479*l.*

ARCHITECTS' CHARGES.—A correspondent remarks that, in the case of the Melton Mowbray Corn Exchange, one of the architects acted, and was paid, as clerk of the works as well as architect.

AN OLD ROMAN'S EPITAPH.—Some workmen, in making an excavation at Constantina, in Algeria, a short time back, came on an ancient tomb, which turned out to be that of a Roman citizen. It offered no peculiarity in construction, but the inscription, which is in well-written hexameters and pentameters, is curious:—"I, Procilius, whose remains repose here, state the exact truth in these verses. I have spent a life without annoyance, exercising the calling of silversmith in my house at Cirta. I have always been of the strictest probity, and of the most complete frankness towards every man. I have nothing whatever to complain of, for I was always gay and always happy, until the death of my chaste Valeria. I have celebrated with honour and in prosperity one hundred anniversaries of my birthday; and, at last, my final day arrived when my enfeebled frame rendered it welcome. The lines which you are now reading I composed myself during my lifetime, being permitted so to do by the kind goddess Fortune, who never forsook me. Follow the path which I have taken: I await you here below: come!"

A RAILWAY SPECULATION.—The East Lancashire Railway Company have adopted means similar to those some years since started by some of the metropolitan companies, to induce building operations in the vicinity of their line. To any person who will build houses within two miles of their stations at Maghull, Ormskirk, Burscough, or Town Green, of the clear annual value of 50*l.* per annum, they guarantee the privilege of nominating one resident, who shall travel free, as a first-class passenger, between these places and the Liverpool Exchange station, during a term varying from seven to eighteen years, according to the position of the houses erected.

THE BRITISH INSTITUTION.—The collection of works by the old masters, just now opened, with a sprinkling as usual in the south room of pictures by deceased English painters, although, perhaps, less important than it has sometimes been, nevertheless contains some pictures of great interest by Carlo Dolci, Tintoretto, Velasquez, Rubens, and others. No. 41, called in the catalogue "Portrait of a Man," by Holbein, is inscribed, "Sr Nicolas Pointz." The lines at the side are curious:—

"Je obais à qui je dois.
Je sers à qui me plaist:
Et suis à qui me merite."

TENDERS

For additions and alterations to Ham Church, Surrey. Quantities supplied:—

	For a new Aisle.	Repewing and Alterations to Old Church.
	£. s. d.	£. s. d.
Myers	1,470 0 0	372 0 0
Brewer	1,424 0 0	344 0 0
Richards	1,377 0 0	395 0 0
Day	1,300 0 0	275 0 0
Wells	1,225 0 0	340 0 0
Wilkinson	1,167 0 0	315 0 0
Adamson and Sons	1,047 0 0	279 13 0
Wilson (Pimlico)	949 0 0	187 0 0

For proposed gun factory, for Messrs. Deane, Adams, and Deane. Mr. Richard Roberts, architect. Quantities supplied:—

Haward and Nixon	£9,200 0 0
Cubitt and Co.	8,875 0 0
Lee and Son	8,474 0 0
T'Anson, Brothers	8,346 0 0
Myers	8,330 0 0
Lucas, Brothers	8,200 0 0
Locke and Nesham	8,169 0 0
Vialou	8,000 0 0
Haynes and Eyre	7,823 0 0
Carter	7,495 0 0
Piper and Son	7,477 0 0
Lawrence and Sons	7,450 0 0

For new workhouse at King's Lynn, for Board of Guardians:—

W. D. Harding (Lynn)	£12,960 0 0
S. Simpson (Ipswich)	10,880 0 0
W. Tollitt (West Drayton)	10,850 0 0
W. S. Simpson (Lynn)	10,800 0 0
J. Stimpson (Lynn)	10,668 0 0
A. Niell (Bradford)	10,196 0 0
M. Bambridge (Lynn)	9,943 0 0
C. Bennett (Lynn)	9,915 0 0

TO CORRESPONDENTS.

"*Salt in Walls.*"—A correspondent asks what is the best method of treatment for walls suffering not from damp but from salt in the walls.

"A Contractor" (others think differently).—"R." (very true; but not exactly mentionable).—"J. S."—"J. W. H."—"H. T. E." "G. S."—"H."—"B. W."—"E. L. S."—"R. R."—"C. K. R."—"G. B. N."—"T. E. W."—"J. H."—"T. and H."—"J. L." (we are not able to give satisfactory information on the subject)—"J. H. M." (shall appear).—"A Junior" (ditto).—"C. C. N." (Thanks).—"W. S."—"T. D. B."—"P. W. E."—"W. R."—"W. R."

"*Books and Addresses.*"—We are forced to decline pointing out books or finding addresses.

NOTICE. — All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and not to the Publisher.